

STATE OF INDIA'S HEALTH



Voluntary Health Association of India

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STATE OF INDIA'S HEALTH

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Prologue

During one of his occasional visits to New Delhi, a senior official of the World Health Organisation (WHO) voiced his organisation's perspective of the state of the world's health: 'By the year 2000 AD, *Health for All* will be a reality for the people of Europe and North America. Perhaps China, the countries of Southeast Asia, the Middle East, Central Asia and select countries of Latin America will reach this goal by the year 2010 AD. For the rest of the world it is hazardous to do any guess work.' At this stage we cannot help but ask what is perceived as health?

Health, as defined by the WHO, 'is a state of complete physical, mental and social well-being and not merely the absence of disease.' Following this definition, what is the health status of the superpower—the United States of America? The health budget in the US rose from a mere US\$ 3 billion in 1929 to 26 billion in 1960, and to 542 billion in 1987. According to this projection, it will reach a figure of 1.5 trillion by 2000 AD. One can justify the increase from 1929 to 1960, when health infrastructure was being developed in the US to create better health conditions. What has happened since then is the 'commodification' of health care: a tale of over and unnecessary consumption of medical care, the pathetic effort to keep people alive for a few more years in sterile, impersonal hospitals with a life support system, far away from the peace and comfort of familiar surroundings.

Is there reason to be proud if they still need 250 doctors for a population of 10,000? Coupled with this is the phenomenal growth of such health-destroying industries like tobacco (US\$ 35 billion), pesticides (US\$ 14 billion), infant formulae (US\$ 2.5 billion) and irrational, overpriced pharmaceuticals (US\$ 100 billion). Is this the 'healthy' society which the rest of the world should emulate? Even this state of health is achieved by consuming the bulk of the world's natural resources. In short, the process of making the rest of the world as healthy as the USA will cause terminal illness for the earth as a whole.

We obviously need a new paradigm of health care far removed from the current bio-medical model and closer to a socio-political and spiritual model. Currently, health care has become a commodity that can be bought and sold in the market; it is no longer an organic part of community care as it once was in traditional society. The 'germ theory' needs to be replaced by a model where the human being is regarded as central and helped to regenerate a sense of well-being and fitness in his or her life situation. Interestingly, most of the traditional systems approach health from this holistic perspective. Human society must know how to deal with such biological occurrences as birth, death, pain etc. We need to look at the traditional health cultures of our people and guard

against the pitfalls of the Western system in an attempt to evolve an alternative health system for Indian society. Will the medical profession and vested interests in the health industry allow such a paradigm shift? Should not those in the medical profession take more seriously the title which they have been conferred, i.e., 'doctor', the original Latin word *docere* meaning 'teacher'?

Yet, all events, be it the Indian Medical Association's (IMA) reaction to the introduction of the community health workers scheme or the recent decision of the consumer council regarding the accountability of doctors, point in the opposite direction. The malady of the health system, whether the public or the private sector, is rooted in this attitude which has to be combated with a popular consumer movement as well as through a dramatic paradigm shift in the health policy of the country—a shift which is potentially explosive since vested interests in health care have incredible clout with the socio-political power structure.

About one-third of our people remain half-starved. They work in the most hazardous atmosphere and survive in abysmal living conditions. For them even a semblance of good health is a distant dream. The suffering of millions of others goes beyond the infant mortality rate, the maternal mortality rate, and related statistics. For a mind prone to generalisations, India can prove to be like quicksand. At one end of the spectrum are the states of Kerala, Punjab, Maharashtra and Tamil Nadu, while at the other are the BIMARU states of Bihar, Madhya Pradesh, Andhra Pradesh, Rajasthan and Uttar Pradesh. Except for the first two decades after Independence, the response of the health system to these challenges has generally been disappointing, preoccupied as it is with either the sterilisation programme or externally-prompted vertical programmes like immunisation or crises management. In areas of utmost need, the general socio-economic situation of the people remains static—the government health system has been dissipated and the private sector is thriving at the cost of human misery.

In this overall gloomy scenario, the voluntary sector has played an important role in health care, but these initiatives are usually built around charismatic individuals, thus decreasing their impact. Despite this, however, they have a lot to offer in terms of ideas, experiments and possibilities to the government sector, and an interface between these two sectors has enormous potential.

Politically we have to move from free-for-all consumerised medical care, which provides excellent services for the few who can pay, to a genuine commitment for *Health for All*. We have to look beyond the so-called reductionist bio-medical model to a holistic health model which encompasses a socio-cultural perspective. Most importantly, we need to remember the prophetic words of Rudolf Kirchow: 'Medicine is social science and politics is nothing but medicine on a grand scale.'

Alok Mukhopadhyay



Nutrition

Introduction

India is a land of contrasts. While agricultural, scientific technological and industrial developments have placed India among the top ten industrialised countries in the world, social and distributive justice have largely eluded the people, and the ultimate goal of development—improvement in the quality of life—remains a dream.

Of the numerous problems facing India's development, malnutrition is the most dominant. The term malnutrition implies imperfect nourishment (*malus*—bad, *nutrire*—to nourish) and occurs when the demands of the body for certain nutrients are not met (undernutrition) or are met in excess (overnutrition). In India, however, the latter is rarely a problem. In this paper, then, malnutrition is used in its restricted sense to refer to major health disorders associated with undernutrition.

Nutrition is an integral part of the health and well-being of all individuals. Good nutrition is determined by the intake of an adequate diet, as also a person's ability to resist diseases and infections that interfere with the digestive and absorption processes of the biological system. While good nutrition enables one to lead a socially and economically active life, malnutrition has an adverse impact on morbidity and life expectancy and increases mortality. It stunts physical growth and leads to functional impairment, disability and diminished productivity, and reduces resistance to disease.

It is an established fact that India is no longer deficient in foodgrains. Why then has the problem of malnutrition assumed alarming proportions in India? Primarily because the majority of the population does not have the purchasing power to satisfy their daily food requirements (ICMR 1986; Vijayraghavan 1985). It is not at all

surprising then, that the groups most vulnerable to malnutrition are those below the poverty line, infants and preschool children and expectant and nursing mothers. Malnutrition can no longer be looked upon as a problem of the health sector alone, or as a problem resulting from food deficiency alone. Rather, it must be seen as both a cause and consequence of poverty and social inequality, as a national problem hindering all efforts towards the development of human resources.

Any analysis of the nutritional status of India's population must take into account several direct and indirect factors: production and availability of food; purchasing power of the people; level of nutrition knowledge; good consumption patterns; distribution of income; distribution of food; levels of employment; unsafe drinking water; poor sanitation facilities; illiteracy and ignorance; and non-availability of health services. In sum, the problem of malnutrition is a culmination of the constraints on food, the purchasing power of the people, and the number of people sharing the available food and money, i.e., food production, purchasing power, population growth. Besides, several other socio-cultural factors compound the problem, as a result of which nutritional status cannot be determined by the criterion of adequate diet alone. Susceptibility to diseases, particularly diseases of the digestive system, and to infections as a result of unsafe drinking water, poor sanitation and unhygienic living conditions, are equally important determinants, contributing to what is called 'nutrition leakage'. Any attempt to combat malnutrition must focus on getting to the root of the causative factors. Figures 1 and 2 summarise the factors responsible for malnutrition and the intricate relationship between them.



Box 1

DROUGHT AND NUTRITION

Malnutrition is a grave manifestation of drought, if not its only consequence. In 1987, India experienced a drought of great severity and magnitude. Yet again, the dependence of the country on the vagaries of nature was underscored. The paucity of rainfall adversely affected agriculture, but the impact on food availability at the macro level was minimal due to sufficient food stocks. The country as a whole used the buffers to absorb the shock inflicted by the drought. However, the poor do not have the luxury of such shock absorbers and in times of shortages, they are the most vulnerable.

The impact of drought on the nutritional status of India's widely stratified society cannot be explained simplistically. As the primary effect of drought is on agriculture, its worst victims in terms of nutrition are rural landless labourers and marginal and small farmers. As their diets are deficient in important nutrients (carbohydrates, vitamins and minerals) under normal circumstances, drought imposes additional stress on them. Even among this section, women and children are at greater risk due to a variety of socio-economic and cultural factors.

Water scarcity and crop failure are the main features of drought, resulting in a deficit of food, fodder and drinking water. The problem is compounded by the lack of employment for the landless and subsistence farmers, emigration of cattle, increasing indebtedness and distress sales of land and possessions. The scale and magnitude of these conditions, however, are directly dependent on the severity of drought and the destitution it causes among the people. In the ultimate analysis, it is a question of survival.

A notable feature of the 1987 drought was the near absence of starvation among the worst affected. The National Nutrition Monitoring Bureau conducted a study on the frequency distribution of the households by energy intake in the states of Gujarat, Orissa, Andhra Pradesh, Tamil Nadu and Karnataka. It showed that not one household in Gujarat or Andhra Pradesh was subsisting on a 'starvation diet' or consumed less than 500 K cal per capita per day. The percentage of such families was only 0.7, 1.0 and 1.5 in Tamil Nadu, Orissa and Karnataka, respectively. During the earlier droughts in Andhra Pradesh (1966), Bihar (1967) and Maharashtra (1973), percentages of

families subsisting on such starvation diets were 4.7, 8.2 and 3.8 per cent, respectively, in severely affected areas.

With availability and access to the staple food having improved for the majority of the people, average energy intakes tended to approximate the level of 2,000 K cal (seen during non-drought period), except in Tamil Nadu (1,670 K cal). This was an improvement on the level of calorie intake reported during earlier drought periods—1,100 to 1,400 K cal.

The consumption of wild leaves, tubers, and other 'famine foods' was also not observed. Usually, the scarcity of food forces people to survive on bran, husk, powdered tamarind seeds, tree bark and ash—portions of foodgrains which do not constitute a part of the normal diet.

However, if not substantially in terms of quantity (energy content), drought adversely affects the nutritive intake of its victims (vitamins, minerals and even proteins to some extent). The NNMB study of the 1987 drought found that under both during drought and non-drought conditions, most food items except staple cereal and millets are consumed much below the recommended dietary allowance (RDA). During the drought, consumption levels of almost all food items in all the states were lower as compared to non-drought periods. At the overall level, the prevalence of overt clinical nutritional deficiency signs showed a definite increase during drought. The signs of protein energy malnutrition (PEM), vitamin A deficiency and anaemia, especially among children and women showed an increased trend. This has serious implications for the general health of the community.

The apparently 'better' situation observed in 1987 seems to reflect the efficient management strategy adopted: foodgrain distribution system, provision of relief works and implementation of feeding and other welfare programmes. Any effort aimed at ameliorating the nutritional status of those affected by drought has to be a comprehensive package which makes available both foodgrain through an efficient distribution channel, and wages, employment opportunities, drinking water, nutrient supplements, water and livestock management systems and medical and health care. Nutrition cannot be provided in isolation.

Figure 1
Food and Agricultural Resource System Affecting Nutritional Status

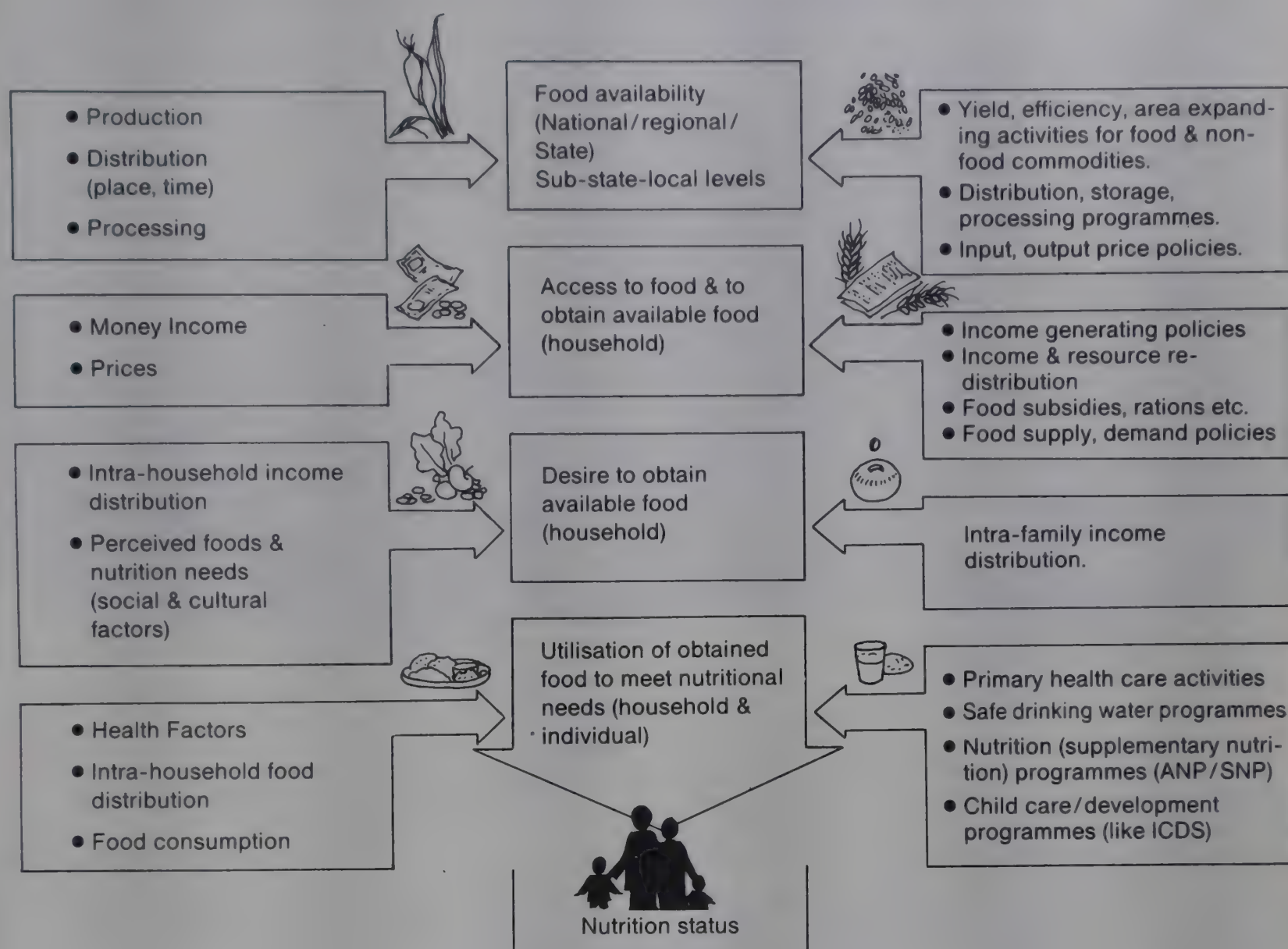
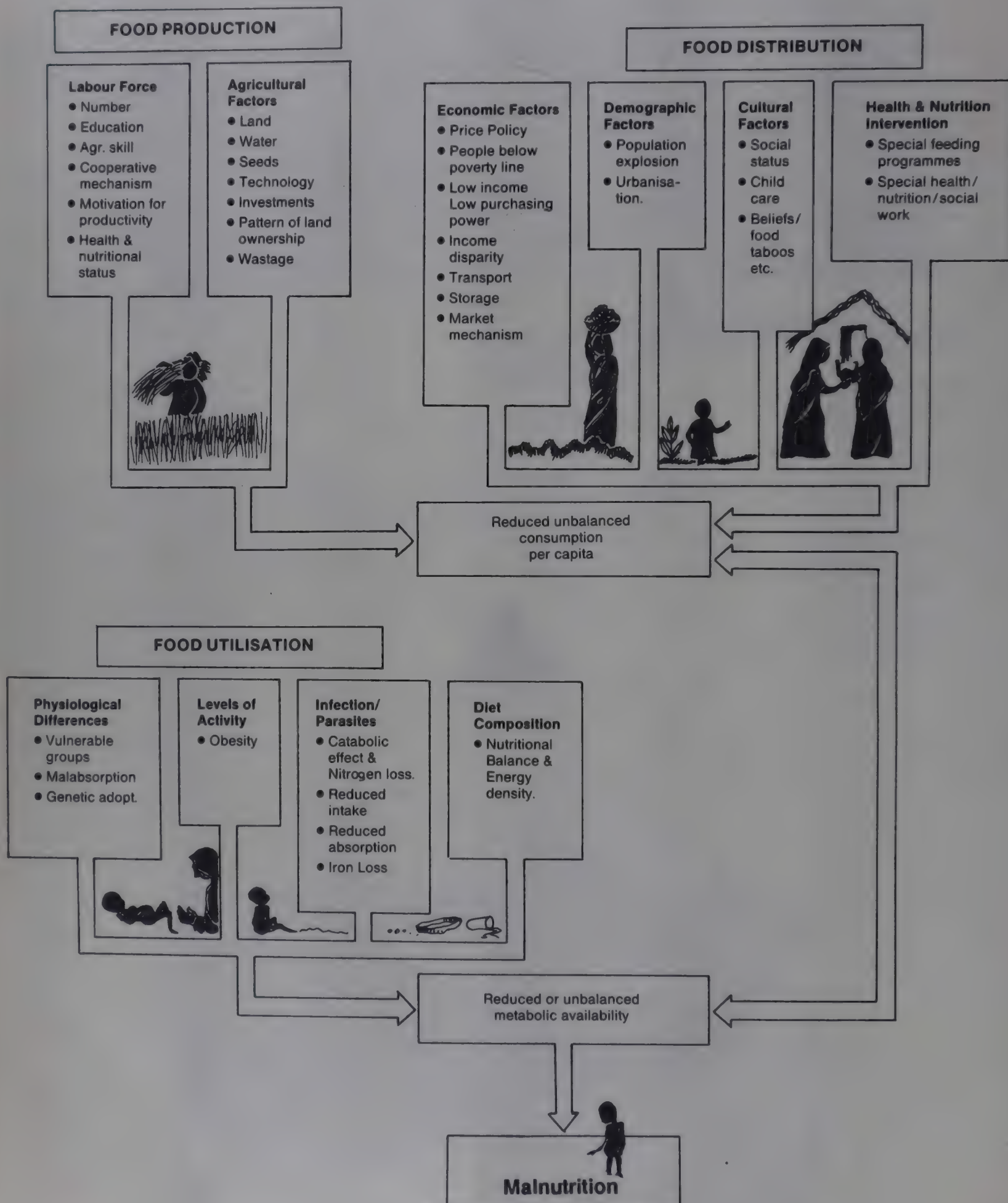


Figure 2
Multifactorial Causation of Malnutrition





Poverty and Malnutrition

In the words of M. Adiseshiah:

We are fighting each other over the precise number of the poor living with us. The numbers will vary with the norms used—calories, calorie/protein, calorie/cultural, health/housing/clothing, or PQLI — and the percentage would move a few points either way depending on the methodology used. But these definitional... problems do not change the stark fact.

The stark fact is the alarming scale of poverty in India, with the number of people below the poverty line exceeding the total population of the Soviet Union. They not only lack the resources to meet their minimum calorie requirements, but live in miserable environmental conditions with no access to protected drinking water and sanitation facilities, thus putting them at risk to infection and disease.

Their poverty is further enhanced by prolific and unplanned childbearing. India's crude birth rate is 33.3 per 1,000 population (RGI 1981) and by the year AD 2000 our population is expected to reach the one billion mark. At any given time then, there will be approximately 100 million pregnant and lactating women, 170 million preschool children (under 6 years) and 250 million school-going children (6 to 15 years)—(Gopaldas and

Christian 1989). Furthermore, this will have grave consequences on the already vicious cycle of low birth weight female infants -> malnourished adolescent -> malnourished pregnant and lactating mother -> low birth weight infant.

If India is not deficient in foodgrains today, the same will not be true by the turn of the century. While the average growth rate over the past five years has been 2.2 per cent, national foodgrain output has been a mere 1.5 per cent (Mitra 1989). Unless immediate steps are taken to check population growth, it will have deleterious consequences on the already grave problem of poverty and will be a major deterrent to the improved nutritional status of our population.

Socio-Cultural Factors and Malnutrition

Social and cultural factors influence the food consumption patterns of our population, which in turn have a significant impact on nutritional status.

The bulk of the Indian diet, unlike the Western diet, consists primarily of any one cereal: rice, wheat, maize, jawar or bajra. Of these, rice accounts for 43 per cent of total cereal production, followed by wheat (33 per cent). As much as 60 to 80 per cent of our food is derived from any one of these cereals. Such an imbalanced dietary intake poses a nutritional risk for three reasons:

1. Should the crop of any one cereal fail, it would lead to a major crisis unless prompt action could be taken by the government to make up the deficit
2. Any inherent defect in a particular cereal which forms the staple diet could result in serious nutritional disorders. For instance, pellagra occurs where maize or jawar are consumed in large quantities; beriberi in areas where polished rice is the staple food; lathyrism where the pulse lathyrus sativus (kesari dal) forms the bulk of people's diets
3. Due to the paucity of other food items in the diet, certain foods rich in vitamins and minerals are denied to the body, resulting in deficiency disorders. It has been found, however, that the selection of food items in the Indian diet is determined as much by economic constraints as traditional and tenacious food habits. A conscious effort to educate the people about the advantages of other foods could help overcome some of these problems

Several other factors also impinge upon the nutritional status of an individual. These include: breast-feeding practices; weaning practices (timing, duration, quantity and type of weaning foods); intra-familial food distribution (male vs. female); child-feeding practices (who feeds the child—mother, siblings, others); occupational status of the mother and nature of occupation (distance from home); nuclear or extended family; decision-making within family; and food taboos.

While all these factors might not apply to all communities at all times, they highlight the fact that given the marginal status of households with regard to food availability, any one of these factors can determine whether a child will be well-nourished or malnourished

and to what degree. An important factor that is assumed to have a significant impact on nutritional status is maternal education. Although no direct association has thus far been established, four possible relationships have been suggested and merit further study:

- The two are mere associates: there being no cause and effect relationship
- *Household economic effects*: better education -> better marriage -> better income
- *Intra-household effects*: better education -> better nutrition and health-related knowledge -> better weaning and feeding practices -> better care during sickness -> shift of power in household to women.
- *Health related effects*: better education -> higher age at marriage -> better spacing of children -> immunisation -> personal hygiene -> utilisation of available resources and services

Historically, the incidence of nutritional disorders was perhaps negligible as long as people were able to eat well. Nutritional disorders emerged as public health problems once man began to exploit man—through slavery, feudalism, capitalistic relations of production, unequal terms of international trade, etc. These exploitative relations led to the disruption of the ecological balance, which in turn compelled people to live in the most degrading ecological settings. The root causes of the outbreak of nutritional disorders then are social, economic and political.

Nutrition science claimed its pedigree from chemistry, biochemistry, physiology and clinical medical science. This cross-fertilisation triggered off a series of scientific breakthroughs: nutritional elements were identified,

Box 2

ALTERNATIVE FOOD SOURCES

About 3,000 plant species have been used as food at some time during human civilisation. Of these, only 150 species are cultivated today and less than twenty provide over 90 per cent of our food needs. Wheat, rice and maize alone meet over half the human energy needs. Since monocultures are extremely vulnerable to catastrophic failures brought about by diseases or climatic stresses, reliance on such a small number of plants carries great risks.

With the rapid depletion of the genetic diversity of crop plants, considerable interest is emerging with regard to lesser-known plants of food value to meet the needs of an increasing population, especially in the developing world. In fact, 75 per cent of the world's lesser-known crops are grown and consumed in tropical countries. There is a need not only to conserve these, but also to improve the yield of the more promising ones.

A recent study pointed to the variety of lesser-known species cultivated by the farmer under traditional slash and burn

agriculture in northeast India. Although the contribution of energy and protein through such plants is only a small fraction of the total food consumption of the tribals in these areas, these crops play an important role during the winter months when traditional food items are in short supply. From the nutritive point of view, many of these crops are superior to traditional ones. *Flemingia vestita*, for example, a plant raised through tubers by the Khasi tribe, has three times more protein than cassava and twice as much as sweet potato, both of which are more widely grown root crops in the tropics.

On average, plant sources contribute about 70 per cent and animals about 30 per cent of the human protein needs worldwide. In many developing countries in the tropics, plant sources provide upto 90 per cent of the food protein. With improved techniques, lesser-known crops could play an important role not only in the nutrition status of the rapidly increasing population, but also in upgrading soil fertility through appropriate inter-cropping.

Although there exists no definition of junk foods—a term originating in the USA—they represent foods and drinks high in calories and profits and low in nutritional value. But this is not the whole picture. Junk foods usually contain excessive quantities of fat, salt and sugar, thus paving the way for high blood pressure, heart disease and cancers of the colon, breast and prostate. This apart, junk foods contain a variety of additives which put the consumers—mostly children and adolescents—and workers at the work site within range of several health hazards.

Several additives, banned in other countries, are permitted for use in India under the Prevention of the Food Adulteration Act (PFA):

- Tartrazine, commonly used in cakes, soft drinks, etc., is associated with asthma, migraine, hyperactivity and rash. The same is true of the additive Sunset Yellow. These are banned in Norway and Finland and their use heavily restricted in Australia.

- Amaranth, widely used in foods and beverages in India, has been banned in the US. Indigo carmine, used extensively in biscuits and sweets, has been banned in Norway.

- Benzoic acid, generally considered safe, is used extensively in tomato ketchup, syrups, soya sauce, etc., and has been known to cause nervous disorders. Sodium nitrate, a common additive, is known to be carcinogenic. Sodium bisulphite, besides causing several allergic reactions, destroys vitamin B1 in foods.

And what of non-permissible additives? A study carried out by a government laboratory in Lucknow over a period of eleven years (1960-71) revealed that about 70 per cent of food samples contained non-permitted colour which is used extensively in low-priced ice candies

Box 3

JUNK FOODS



freely marketed by mobile cycle-rickshaw stalls.

The annual production of soft drinks in India is 2,600 million bottles, with export earnings amounting to Rs 30 crores. Colas contain 42 mg or 120 g of caffeine per bottle. Like nicotine, caffeine is addictive, causes an accelerated heart rate, interferes with sleep and depletes the body of thiamine. It has also been shown to interfere with reproduction, causing miscarriages, birth defects and infertility. Each 12 ounce bottle contains 10 to 14 per cent of the 'silent killer'—sugar—which contributes to dental cavities, heart disease and obesity. Several other preservatives in soft drinks—BHA, BHT, BVO—are also considered undesirable.

Processed junk foods are also rich in salt which in excess can lead to heart disease and strokes. Monosodium glutamate (MSG) has also been banned in several countries but not so in India with the rapidly expanding popularity of Chinese food in which it is used extensively. It has been known to cause dizziness, tightness in the chest and a burning sensation.

Are we then poisoning ourselves in the quest for modernity? Why are we supporting our junk food industry at the cost of our health? Even the West is fast beginning to realise the hazards of junk foods and it is time we took a look at the US Surgeon General's 712-page report on the linkage between diet and health. Following this, the report of the Food and Nutrition Board of the National Research Council on Life Sciences highlighted the role of fats, carbohydrates and proteins, arguing for a staple diet based on protective foods like fruits and vegetables. When will we in India, with our long tradition and knowledge of this field, stop to think of the consequences of discarding ancient dictums and simple food practices?

balanced diets established, the complex pathways in the metabolism of proteins worked out, and various forms of primary nutritional disorders identified as outcomes of specific deficiencies. In time, nutrition education, food processing and animal nutrition became additional components of the science of nutrition. Undoubtedly these advancements made a major contribution to the body of knowledge. However, with the increasing scientific content in this body of knowledge, the focus of studies moved further away from the problems of humans in their ecological settings. Instead, biochemical laboratories and animal houses became the venues for the study of human nutrition.

There are those, like D. Banerji, who argue that this shift in emphasis was not unintentional. Such research was promoted by market interests because nutrition became fertile ground for the rapid promotion of the food and drugs industries. The symptoms were emphasised while the root cause was obscured. Nutrition education too was dislodged from its ecological and cultural moorings and concentrated instead on 'selling' nutritional disorders and their cures.

Nutrition scientists talked of the high incidence of protein deficiency among people and advocated the use of animal protein, thus creating a market for the protein food industry. The same was true for baby foods. In fact,

so pervasive was the influence of these market forces on nutrition research and practice, that nutritionists came to be looked upon as 'sales agents' of these industries. But it is undoubtedly true that their preoccupation with research has taken them far away from the ecological, sociological, economic and political factors that impinge upon the nutritional status of a people. In the words of J. Gussow (1981):

Fearing that we would not be taken seriously as scientists... we have attended to the ever smaller and smaller: breaking down food, food handling, food processing, food functions, into manageable microscopic pieces; looking at the isolated effects of the isolated biological systems. I believe it is time now for some of us in the field of food and nutrition to take up our macroscopes rather than our microscopes, to begin the task of looking at connections not merely between nutrients and cells or between food handling, food textures and food toxins, but of looking at the connections between farmers and producers; between food policies and environmental policies; between toxic wastes and the opportunity to produce safe affordable food; between tax policies, development policies, and land use policies.

Unless we imbibe this, unless we look at the problem from a holistic perspective, little can be done towards alleviating the problem of malnutrition.

Malnutrition and the Availability of Food

India has made considerable progress in foodgrain production, registering an increase from 50 million tonnes in 1950 to 152.37 million tonnes in 1983-84 and to about 170 million tonnes in 1988-89. The rate of food production has always exceeded the population growth rate of 2.5 per cent per annum. The data on per capita net availability of foodgrain reveals that in 1951 it was 394.9 gm per day, as compared to 465.5 gm per day in 1987. The per capita net availability of cereals during the same years was 334.2 and 429.3 gm, respectively. However, the per capita availability of pulses declined from 60.7 gm to 36.2 gm. In a country as vast as India, overall figures for food production provide a rather misleading picture of the actual situation as they tend to mask certain striking regional imbalances. The phenomenal success of the Green Revolution, for instance, is largely attributable to the performance of only two states—Punjab and Haryana. Per capita food production actually deteriorated in Madhya Pradesh, Maharashtra, Rajasthan, Tamil Nadu and Kerala. Figure 3 presents data on state-wise availability of foodgrains and shows ten states to be deficient.

Food production policies have also contributed to these imbalances. A case in point is the substitution of food crops with cash crops meant primarily for export. The cultivation of soyabean in Madhya Pradesh has

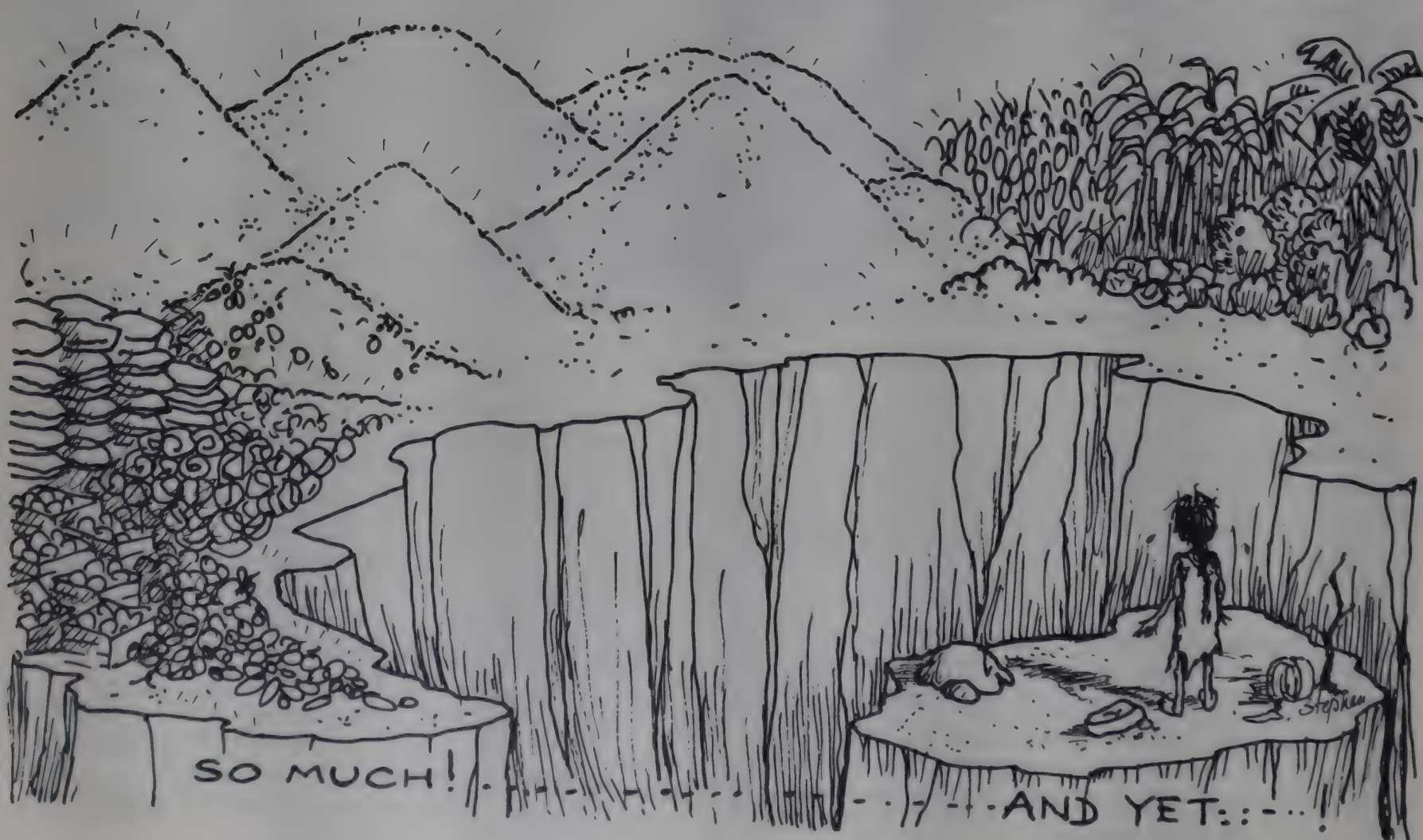
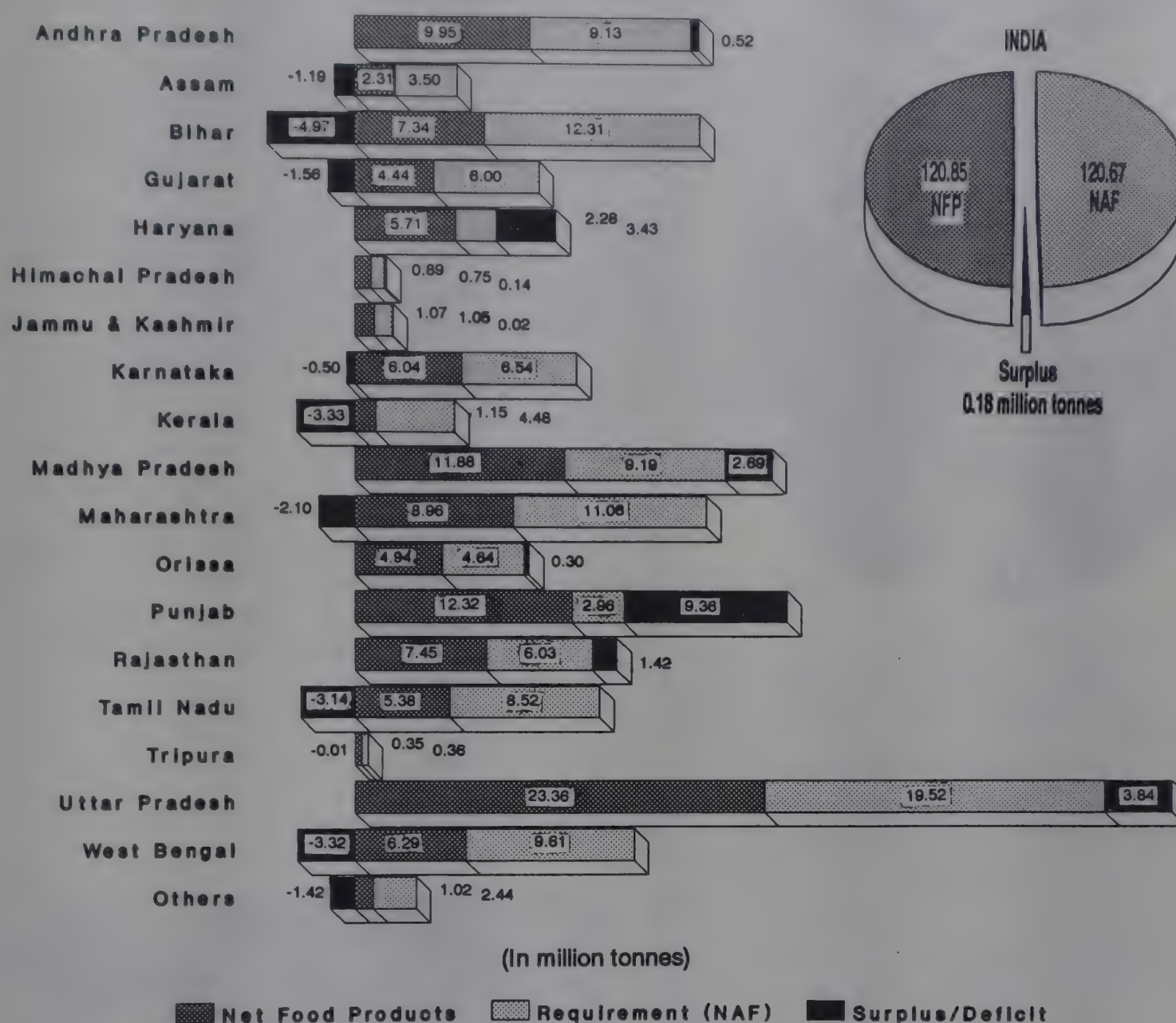


Figure 3
Foodgrain Availability in States



Source: Compiled from ICMR data (1986)

replaced the cultivation of coarse grains which constitute the staple diet of the poor. In other areas, potato cultivation has been replaced with sugarcane which yields less calories per hectare than the former. The most unfortunate aspect of such policies—the adverse effect on nutrition besides—is that the benefit of export earnings do not reach the poor at all. Similarly, although the Green Revolution has resulted in a significant increase in the production of wheat and rice, it has had no impact on the production of pulses and legumes, which ensure the protein content in cereal-based diets, or on coarse grains and oil seeds. In fact, the prices of pulses and edible oils have increased to levels that make them inaccessible to

lower income groups whose need for these is the most acute. Unfortunately, it is the nutritionally vulnerable groups which are least able to get coarse grains, cheap pulses and vegetable oils. We are thus faced with the cruel paradox of a Green Revolution that has augmented cereal production while indirectly contributing to an impairment of the nutritional status of poor households.

An analysis of National Sample Survey data on nutrition by P.G.K. Panikar revealed that in Karnataka, Gujarat and Maharashtra, over two-thirds of the diet of the rural population comprised of coarse cereals. The steep rise in the price of coarse grains resulted in a decline in the average intake of calories among the rural



population. In Orissa, Assam, Bihar, Andhra Pradesh, West Bengal, Tamil Nadu and Kerala, rice constituted the principal component of the cereal basket—in 1961-62 it accounted for 83 per cent of the diet and declined to 78 per cent a decade later. The average intake of calories also declined during this period. The study concluded that the nutrition level in these states is precarious and their deficiency seems to be chronic. In the Green Revolution states of Punjab and Haryana too, the average intake of calories has shown a declining trend. This is because several poor peasants and labourers are denied the benefits of the Green Revolution. Access to technological inputs is usually denied them and the surplus food is produced by the rich farmers who demand higher prices and subsidised inputs. Marginal farmers are often forced to sell part of their produce to the large farmers to repay loans they are forced to take in times of need. They sometimes buy back their produce, but at an enhanced price. Many have joined the ranks of landless labourers. This is not to deny the advantages of the Green Revolution, but to point out the failure to build the necessary safeguards in the development process to prevent the deleterious repercussions on the weaker sections.

The public distribution system too has failed to reach the most deprived, both in the rural areas and in the urban slums. D. Banerji's study (1985) of nineteen villages reveals that about 35 per cent of the population does not get two square meals a day for more than three months in a year. Moreover, the proportion of poor in the population will increase sharply if the criterion of 'square meals' is replaced by 'wholesome meals' which

includes a small quantity each of pulses, ghee/oil and iron in the case of adults, and the addition of milk in the case of children.

Related to the problem of food production is that of storage. Some amount of foodgrain is lost due to pest attacks, some during the post-harvest season, and some due to inefficient storage facilities which expose the grain to moisture, rats and fungi. Not only does this result in a considerable loss of available foodgrain, but points to the lag between technical knowledge and its application at the field level.

The faulty distribution system too contributes to extensive losses. Often surplus production of certain perishable foods results in a glut in the local market, while the same commodities are found to be scarce in other parts of the country. Thus, inadequate distribution facilities merely result in the crop being destroyed. The equitable distribution of available food would go a long way towards combating malnutrition. Unfortunately, however, the distribution is uneven not only between regions but within households as well. Hence, an increase in food production alone is not the answer; the solution lies in tackling the socio-economic factors that prevent people from getting what they need. In fact, foodgrain stocks increased from 11.7 million tonnes in





Box 4

A TALE OF TWO VILLAGES

Sava village is located near a road. The conditions here now seem to be better than those prevailing in a normal desert area: village-women filling clean drinking water from a well, doctors at work in a medical camp, preparation for a special nutrition centre to prepare food for the most needy people. But all this has happened only after a very serious tragedy struck this village of 2,700 people. According to official figures, sixty-four people died in over four months—in other words, one death every other day for a period of 120 days or so.

An official team of doctors which inquired into the deaths and the general health situation in the village established clearly the importance of undernutrition and malnutrition as an important factor in these deaths. According to this team, most of the people in these villages were subsisting on *roti* and chillies alone. In terms of calories, the team estimated, an adult had been consuming around 1,300 to 1,400 calories per day (cal/day), as against the usual daily requirement of about 2,400 cal/day. Those who died suffered mainly from dysentery and respiratory infections. Ten people had died among families drawing water from a particular well. In the families which had lost one or more members, children below 10 years of age were found to have florid scurvy and vitamin A deficiency. The surviving adults had different grades of anaemia. In general, children were also found to be suffering from varying grades of protein energy malnutrition, vitamin A deficiencies, anaemia and multiple boils. Anaemia, general cachexia and pulmonary tuberculosis were common ailments among adults.

Persons to whom I talked were by and large satisfied with the recent medical and nutrition programmes started in the village, and the shadow of death seemed to be past them. But what will happen when the programmes are discontinued?

We learnt from a dedicated doctor belonging to the Desert Medical Research Centre in the village that this village had been surveyed as a part of a rapid drought survey and timely warning given of the deteriorating situation. The relief, however, reached too late. By that time a large number of deaths had already taken place, especially during a cold wave which many could not survive. Today, the situation appears under

control, but with the livelihood base of the people so badly destroyed, this may be deceptive.

Poojasar village is located further away from the district headquarters, closer to the Indo-Pak border. Unlike Sava, it is located further away from the main road. Conditions of distress here are quite similar to those which prevailed in Sava before the advent of the medical-cum-nutrition programme; but here, the distress conditions are not officially documented. The number of deaths, the extent of calorie deficiency, the cause of deaths—for all this we have to rely on what the villagers feel and say.

They told us that nearly fifty deaths had already taken place that year. Some degree of exaggeration notwithstanding, they were quite emphatic that several deaths had taken place and despite this no special government help had been sent.

When asked about the nature of illness, they cited diarrhoea and vomiting, a malaria-like fever and night blindness as most common. Malnutrition among several people manifested itself in the form of damaged, swollen and reddish gums, making it difficult to chew food even when it was available.

Drought relief work, according to the villagers, was inadequate. Even if the government's promise of employment for one person in every family is actually implemented, how far can this help large families in which there are several adults in need of work?

Poojasar typifies the remote, distressed, neglected villages in the desert where deaths and health problems often go unnoticed by the government; at any rate, no significant effort to tackle these problems has been made. At the time of our visit, while Sava was being widely discussed for the large number of deaths that had taken place, the condition of Poojasar was probably even worse. But while official recognition of starvation deaths in Sava had brought significant relief, the disease and deaths rampant in Poojasar remained unacknowledged and neglected.

Excerpts from 'Distress in the Desert' by Bharat Dogra, in *Health for the Millions*, October 1988.

1980 to 19.2 million in 1985. But the masses simply cannot afford to purchase it. What is this if not a situation of poverty in the midst of plenty? Should our buffer stocks not be seen as an indication of the level of poverty of the masses? Is it surprising then that malnourishment is a problem most acute among the poor and the underprivileged?

Nutritional Situation in India

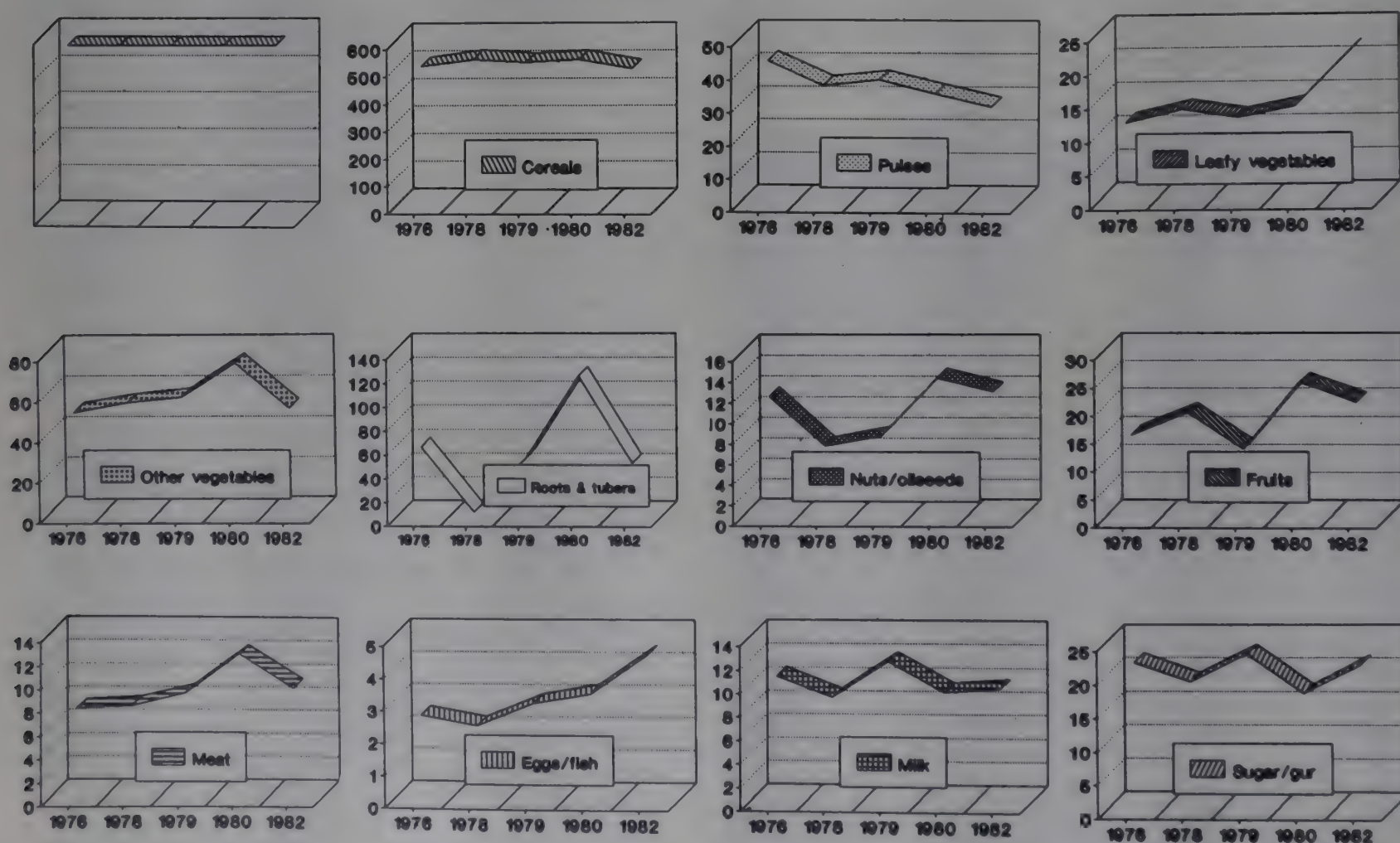
The most glaring nutritional disorders in India are (a) protein energy malnutrition (PEM), defined as a range of pathological conditions arising from a deficiency of proteins and calories. The two distinct clinical disorders associated with PEM are kwashiorkor and marasmus; and (b) disorders resulting from deficiencies of iron (iron deficiency anaemia), vitamin A (keratomalacia or nutritional blindness), iodine (goitre), and vitamin B (angular stomatis, glossitis).

Since 1972 the National Nutrition Monitoring Bureau (NNMB) of the Indian Council of Medical Research (ICMR) has been monitoring nutritional status in the

states of Kerala, Andhra Pradesh, Karnataka, Maharashtra, Orissa, Gujarat, Tamil Nadu, Madhya Pradesh, Uttar Pradesh and West Bengal. From each state 500 rural and 250 urban households were selected for the study. The urban sample was further divided into five distinct socio-economic groups—high income group (HIG), middle income group (MIG), low income group (LIG), industrial labour (INL) and slum dwellers (SLD). Several extensive surveys on food consumption were also carried out by the Food and Nutrition Board (FNB) and notwithstanding differences in coverage and sampling design, the NNMB and FNB data provide the most authentic sources of the nutritional status of the Indian population. The NNMB data revealed that in nearly half the households surveyed, diets were deficient even on the basis of the lowered yardstick of adequacy (m-2SD) of mean requirement.

Figure 4 shows the average consumption of food from 1976 to 1982. It indicates a negative trend in the consumption of pulses and cereals and an upward trend in the consumption of green leafy vegetables. The average intake of major nutrients over the same period is shown in Figure 5, and reveals a negative trend in the intake of proteins, calories, thiamine and nicotinic acid.

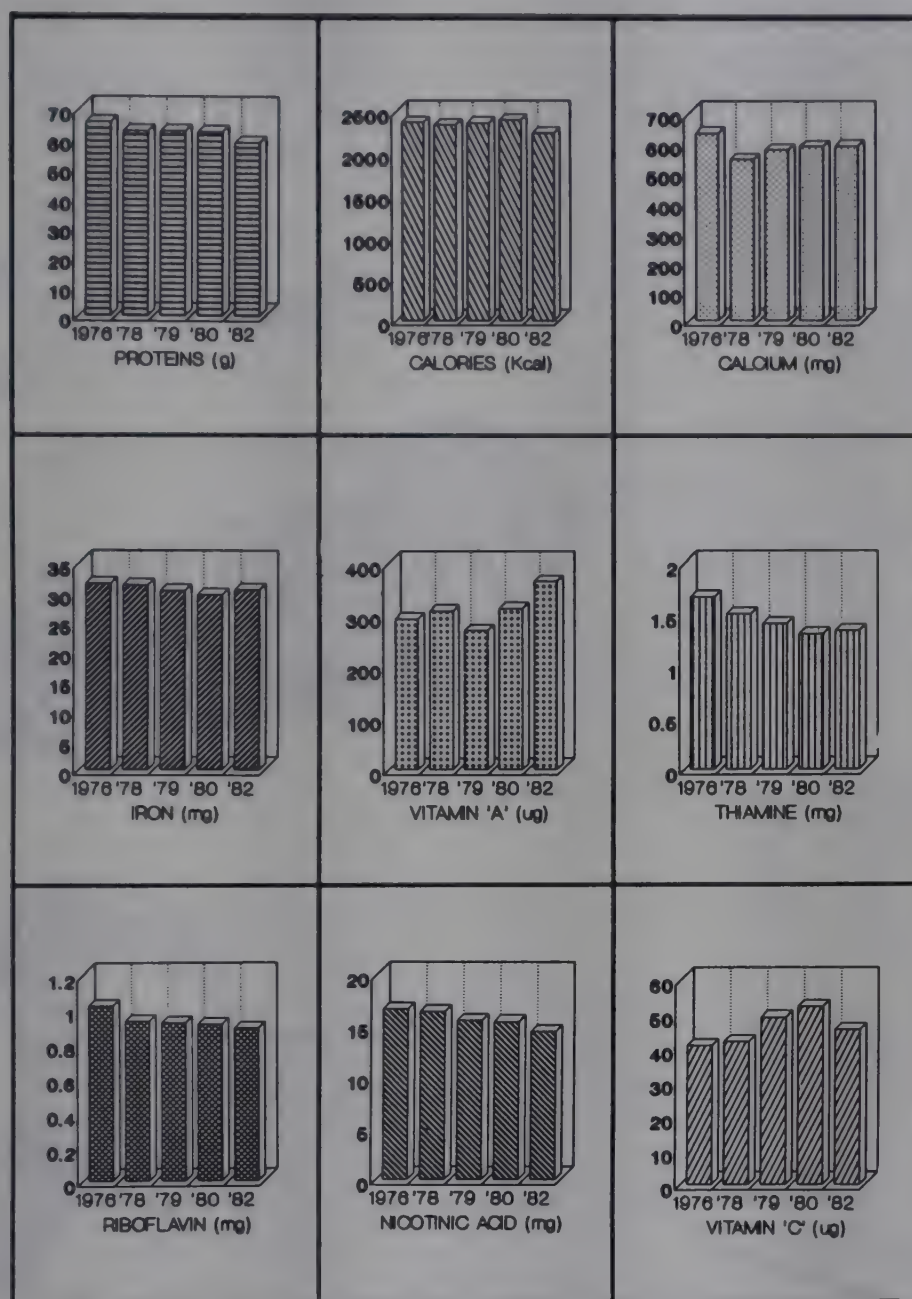
Figure 4
Food Consumption per g cu per day



Source: Compiled from NNMB data for the years 1976 to 1982

Figure 5

Nutrient Intake per g cu per day (Time Trend)



Source: Compiled from NNMB data for the years 1976 to 1982

Table 1 reveals that in almost all states, the calorie intake declined over the period 1980-82. With regard to protein intake as well, only Gujarat showed a positive trend. Data on the intake of vitamin A and iron (Table 2) shows a positive trend in almost all states although the states of Tamil Nadu, Andhra Pradesh and Kerala show a slightly lower level of intake. Figure 6 shows the prevalence of kwashiorkor and marasmus in infants and

preschool children according to income group. However, although these two disorders have received a great deal of attention, only 1 per cent of children under 5 years manifest these severe signs of PEM. According to the Gomez classification, children with weight for age less than 60 per cent of the standard are considered 'severely malnourished', those with weight for age between 75 and 90 per cent and between 60 and 75 per cent of the

standard are considered to have 'mild' and 'moderate' degrees of malnourishment, respectively. Figure 7 shows the incidence of mild, moderate and severe malnutrition among children between 1 and 5 years according to income group. Although the prevalence of severe malnutrition among slum dwellers and rural children is significant, attention should not be diverted from the more pervasive problems of mild and moderate malnutrition which affect more than 40 per cent of the population. According to an ICMR study (1986), only 5 per cent of preschool children have normal body weights for age, 7 per cent show a severe degree of malnutrition, 41 per cent suffer from mild malnutrition and 47 per cent from moderate degrees of malnutrition.

Table 1

State-wise Dietary Intake of Nutrients (Calories and Proteins) for the Years 1980, 1981 and 1982

State	1980		1981		1982	
	Calorie (K cal)	Protein (g)	Calorie (K cal)	Protein (g)	Calorie (K cal)	Protein (g)
1	2	3	4	5	6	7
Uttar Pradesh	2115	69.6	2193	71.5	-	-
Madhya Pradesh	-	-	-	-	-	-
Orissa	2468	58.9	2509	57.8	2156	50.0
West Bengal	2580	62.9	-	-	2426	53.4
Kerala	2158	50.3	2477	62.3	2203	55.8
Tamil Nadu	2196	53.6	2346	58.9	1964	49.9
Karnataka	2992	79.0	2873	76.3	2711	76.5
Andhra Pradesh	2391	56.7	2238	56.9	2061	52.0
Maharashtra	-	-	2472	74.7	2120	62.9
Gujarat	2333	67.4	2162	57.6	2300	69.2

Source: NNMB (1984).

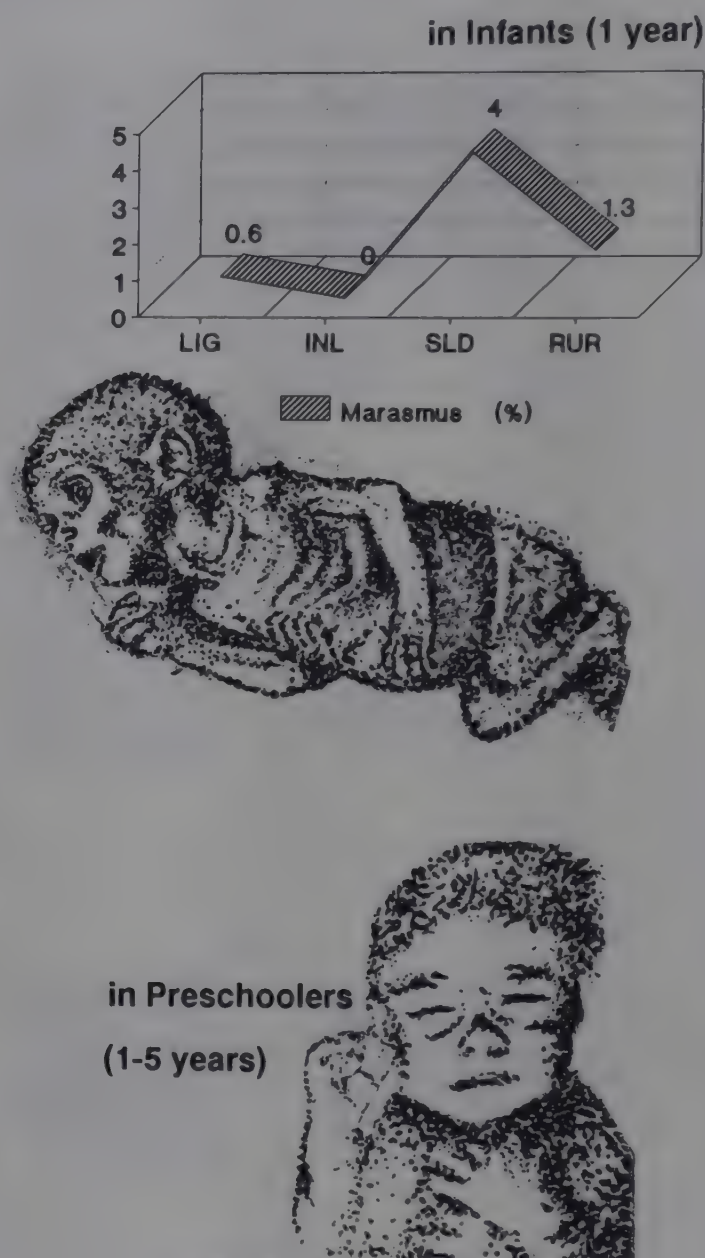
Table 2

State-wise Dietary Intake of Nutrients (Vitamin A and Iron) for the Years 1980, 1981 and 1982

State	1980		1981		1982	
	Vit A Retinol (ug)	Iron (mg)	Vit A Retinol (ug)	Iron (mg)	Vit A Retinol (ug)	Iron (mg)
1	2	3	4	5	6	7
Uttar Pradesh	207	29.1	233	30.6	-	-
Madhya Pradesh	-	-	-	-	-	-
Orissa	472	30.2	645	31.4	550	27.7
West Bengal	405	33.3	386	28.5	1078	40.1
Kerala	350	23.7	-	-	236	22.7
Tamil Nadu	211	25.6	237	20.1	100	27.3
Karnataka	209	43.9	270	42.0	276	44.1
Andhra Pradesh	296	25.7	240	25.2	220	26.2
Maharashtra	-	-	551	30.0	271	36.1
Gujarat	264	25.3	424	26.4	304	27.4

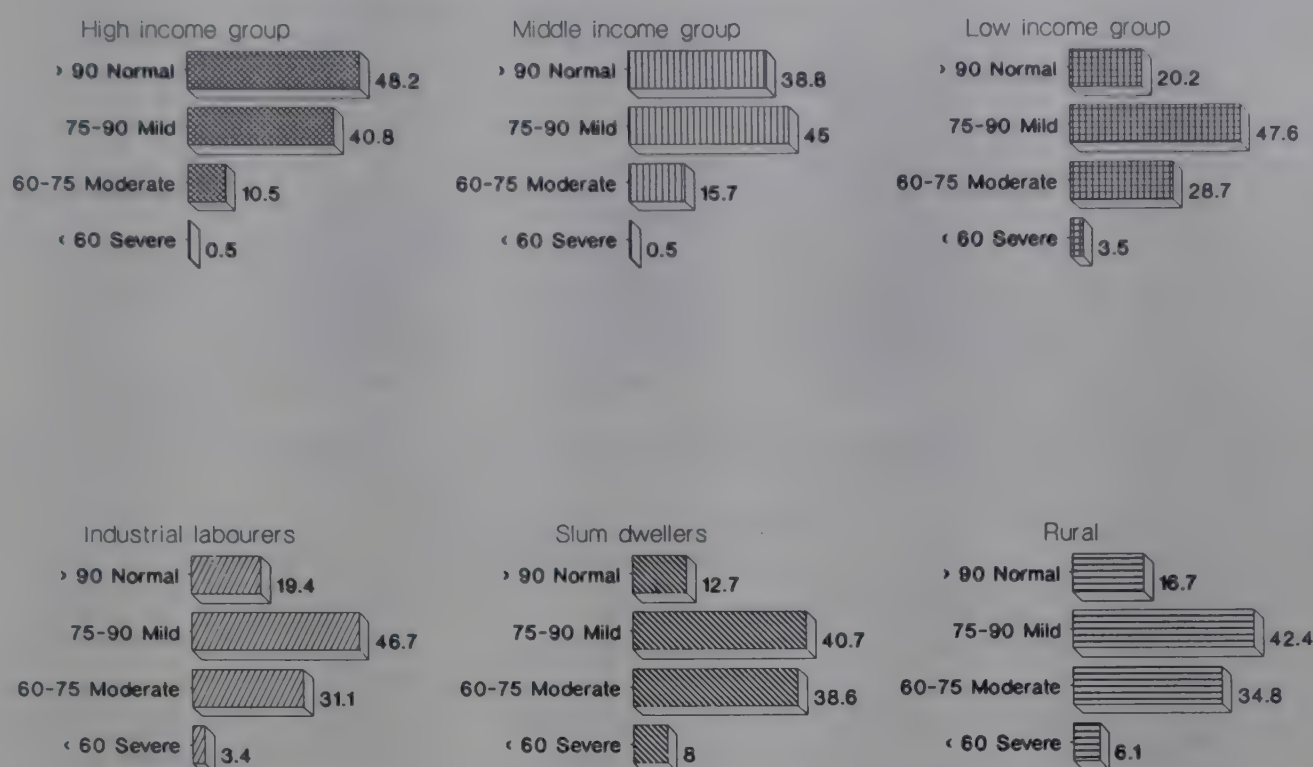
Source: NNMB (1984).

Figure 6
Percent Prevalence of Kwashiorkor and Marasmus



Source: Compiled from NNMB data 1984

Figure 7
Percentage Distribution of Children 1-5 Years of Age
according to Gomez Classification



Source: Compiled from NNMB data 1984

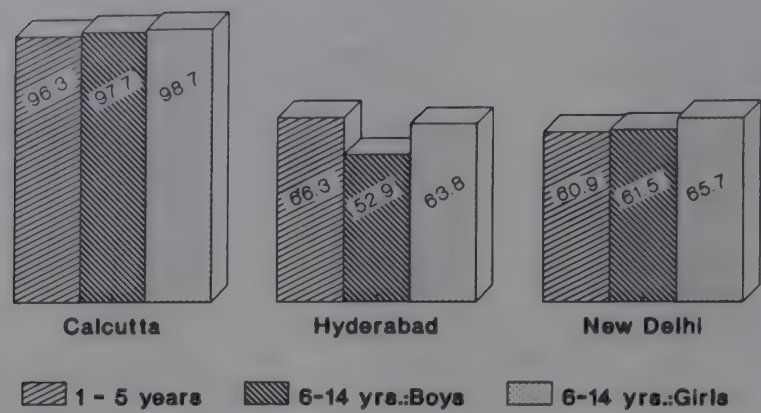
Figure 8 shows the alarming prevalence of anaemia in preschool and school-going children, and Figure 9 the prevalence of vitamin A deficiency disorders. Contrary to the general belief that iron deficiency anaemia is prevalent only among women in the reproductive age, several studies carried out under the auspices of the ICMR have shown it to be as much a problem of preschool children and even adult men. Another study by the NIN showed that 65 per cent of adult women, 75 per cent of pregnant women, 77 per cent of preschool children and 45 per cent of adult men in poor rural communities suffered from iron deficiency anaemia, making it the most extensive nutritional deficiency disorder in the country (NNMB 1980).

Keratomalacia, arising primarily from vitamin A deficiency, has been the major cause of nutritional blindness in children, particularly children between 1 and 3 years of age. Although there are no accurate estimates available of the prevalence of keratomalacia, rough estimates from hospital records reveal it to be a major problem. Field data too does not reveal the accurate picture because of the short duration of the disease itself and because a high percentage of those who turn blind as a result of keratomalacia die from neglect. The prevalence of Bitot's spots, a less serious manifestation of vitamin A deficiency in older children, is taken as a rough measure of the problem. The clinical

manifestations of vitamin A deficiency reveal it to be a public health problem of considerable significance, and one that is closely associated with income levels.

Figure 10 shows the prevalence of goitre in India, a problem that is assuming alarming dimensions with the emergence of new goitre endemic regions (Delhi, for instance, was goitre-free twenty years ago). The data provided by the Central Goitre Survey Team in 1981-82 showed the prevalence of goitre in Sirmor and Mandi in Himachal Pradesh to be 28.7 per cent and 34.5 per cent, respectively. In Ropar in Punjab the prevalence was 45.8 per cent; it was 64.5 per cent in Champaran in Bihar; 35.6 per cent in Darjeeling; and 27 per cent in Arunachal Pradesh. Several studies have brought to light serious and hitherto unsuspected dimensions of the problem—i.e., the prevalence of neonatal chemical hypothyroidism in goitre endemic zones. Almost 13 per cent of neonates in these areas have been found to be functionally decompensated. This finding corresponds closely with the findings of a study by the Nutrition Foundation of India (NFI 1983) which revealed that nearly 15 per cent of school-going children investigated in goitre endemic zones showed varying degrees of mental retardation. Other more limited problems associated with nutrition include pellagra, lathyrism and flurosis. Pellagra is a nutritional deficiency disorder which affects poor populations whose staple diet consists of maize. The low

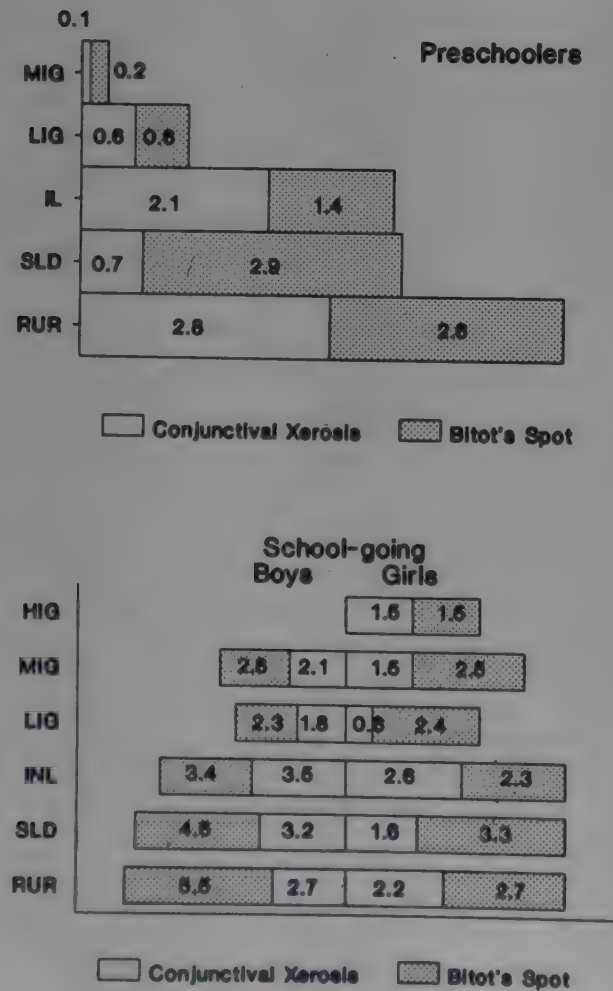
Figure 8
Percentage Prevalent of Anaemia in
Preschool and School Children



Source: Compiled from ICMR data 1982.
The cut off for assessing nutritional
anaemia was 10 Bg/dt.

Figure 9

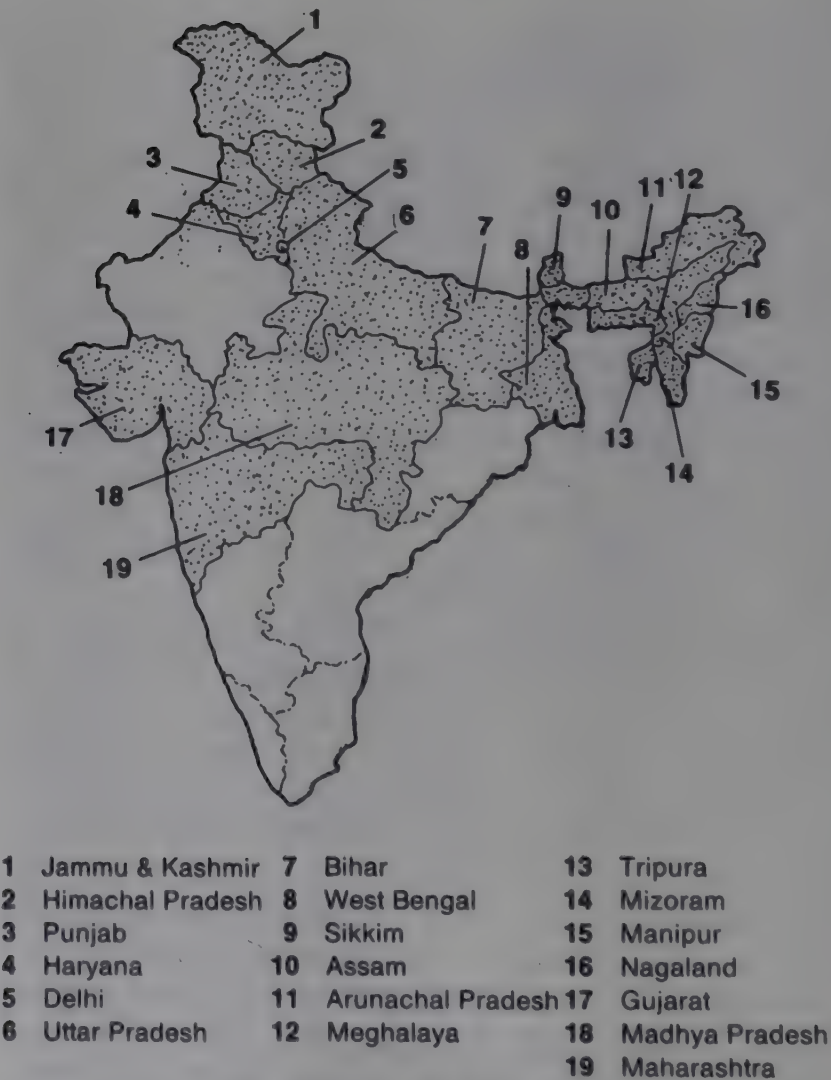
Percent Prevalence of Vitamin A Deficiency
Disorders



Source: Source: Compiled from NNMB data 1984

Figure 10

The Endemic Goitre Belt in India



Source: Compiled from NFI (1983)

content in maize of the essential amino-acid tryptophan, the precursor of nicotinic acid, was held responsible. Pellagra was also found to be prevalent among populations with a staple diet of the millet sorghum, which is not deficient in tryptophan. Both maize and sorghum, however, have a high content of the amino-acid leucine, which in excess in otherwise poor diets induces disturbances leading to a deficiency in the essential nicotinic acid. Neurolathyrism, characterised by spastic paraplegia, affects the lower extremities and is endemic in areas where the diets consist largely of the pulse *lathyrus sativus* (*kesari dal*). The toxic factor in this pulse was identified as BOAA (B-Oxalyl Amino Alanine), but all attempts to ban its cultivation failed not only because it is a hardy crop but because it forms the staple diet for many poor households and for which there is no substitute. A simple household remedy to remove the toxin was developed instead. The seeds can be soaked in hot water for about an hour or can be parboiled. Recently, however, the pulse has found an extensive market outside the endemic area as an adulterant and could intensify the problem.

Although the problems associated with fluorosis are related more to the environment, their linkage with malnutrition cannot be ignored. In areas where there is excess fluoride in the drinking water, as in some parts of Andhra Pradesh, skeletal changes have been seen to occur among adolescents and young adults. Some studies revealed that this problem was closely associated with the construction of the Nagarjunasagar dam, in a series of events such as this: dams → impounding of water → elevation of subsoil water → soil alkalinity → changes in concentration of trace elements in foodgrains → increase in molybdenum in foods → increased urinary extraction of copper → osteoporosis → genu valgum.

Women and Nutritional Status

Although NNMB data does not reveal significant differences between the nutritional status of men and women, several micro studies have shown that the diets of female children and women are inadequate as a result of discrimination in intra-household food allocation (Srikantia 1989). Discrimination against females begins during infancy (Gopalan 1985). Starting with breast-feeding, infant girls receive less milk, less frequently and for shorter periods than boys (Ghosh 1985; Khan et al. 1983). Where there is already one surviving child, it has been found that the girl child has a greater mortality risk. Weaned earlier, they do not get the required quantity of food, predisposing them to malnutrition. Studies have shown this problem to continue through childhood (CARE 1974) and adolescence (Ghosh et al. 1982). In

times of food scarcity, women's access to food is further circumscribed. A survey of flood-hit villages in Bengal in 1978 showed a higher incidence of malnutrition among girls under 6 years (Kynch and Sen 1983). Micro-level studies of the nutritional status of adults of different socio-economic backgrounds also reveal significant male/female differences with poor women being the most deprived (McNeill 1984).

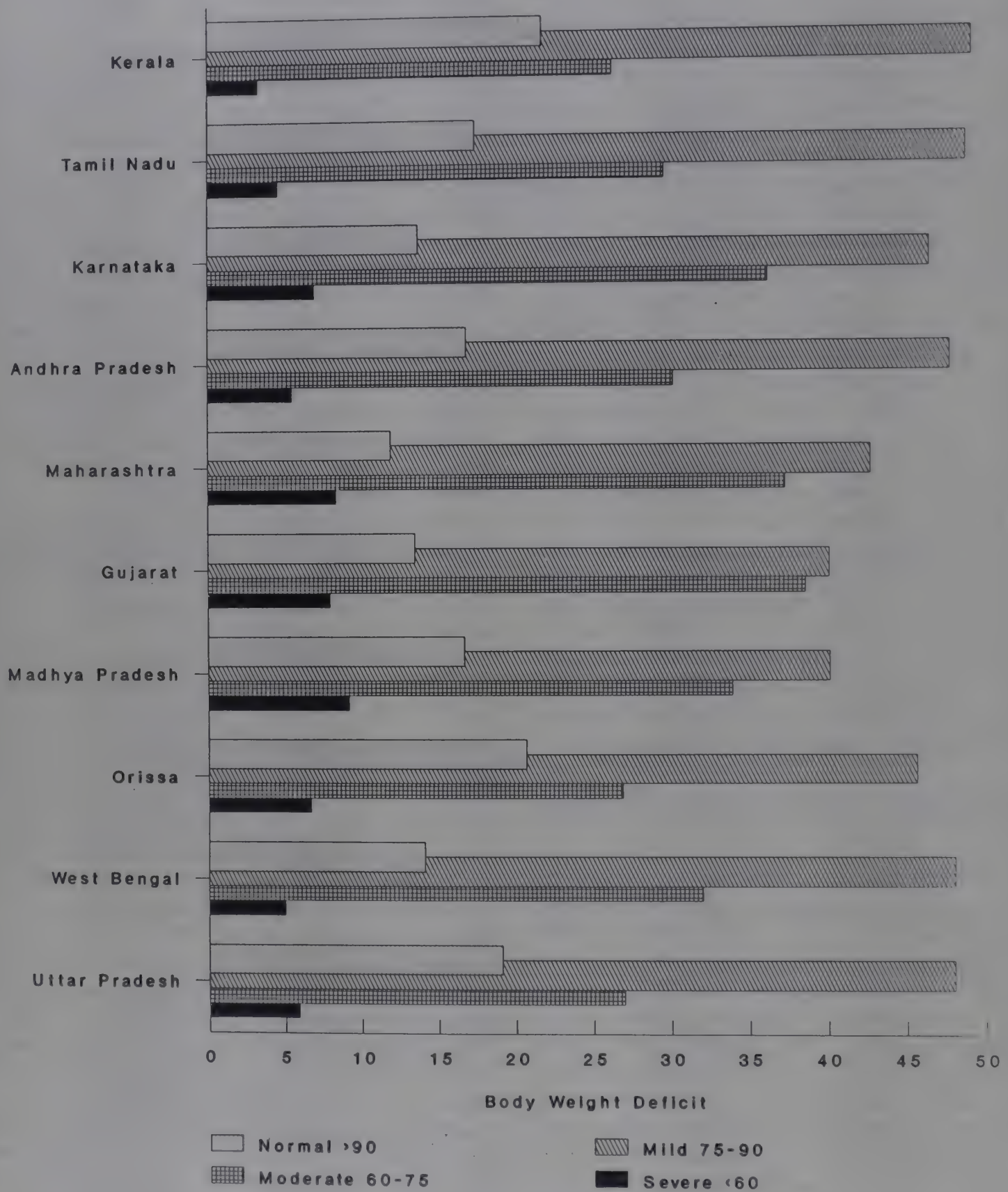
Females are also discriminated against in terms of the quality of food available to them (Devdas and Kamalanathan 1985). In Punjab, Dasgupta (1987) found that under-4 males receive larger quantities of cereals, fats, milk and total calories than females. A major consequence of such discrimination is that girls fail to achieve full growth potential (Gopalan 1987). NNMB (1980) data shows that between 12 and 33 per cent of women in the 20 to 24 age group have heights less than 145 cm and between 15 and 29 per cent have weights below 38 kg.

Below these levels women are at risk from obstetric complications and tend to produce low birth weight babies, thus furthering the vicious cycle. In a study by Ghosh et al. (1982), a 35.5 per cent incidence of low birth weight babies was found among poor, short women, while a 24 per cent incidence was found among poor women over 145 cm in height.

Several studies have been undertaken on the effects of low dietary intake and maternal malnutrition on pregnancies (Devi and Agarwal 1984; Gopalan 1962; Grover 1982; Jesudasan and Ambuja Devi 1976; Swaminathan 1971). The dietary intake of low income groups ranges from 1,200 to 1,600 calories per day (Ramachandran 1989). It has also been found that there is no increase in this intake during pregnancy (Bhatia et al. 1981; Khanum and Umapathy 1976; Nath and Geervani 1978; NIN 1981; Pasricha 1958), with weights ranging between 40-45 kg with an increase during pregnancy of 6 kg. If there is (a) an interval between pregnancies of at least two years, (b) no further reduction in dietary intake, and (c) no increase in physical activity, any adverse effects on maternal nutrition and on pregnancies can be averted. In the event, such women give birth to children with birth weight between 2.5 to 3 kg and have shown themselves to be victims of malnutrition and anaemia (Ramachandran 1989). Figures 11, 12 and 13, and Tables 3, 4 and 5 highlight the problem of malnutrition among girls and women. Furthermore, it is well-established that infections further impair the nutritional status of an individual by altering absorption and metabolism and through the excretion of nutrients in the case of diarrhoea and vomiting. There is evidence that prompt medical attention in the case of illness is often denied to females, thus adversely affecting their nutritional status (Srikantia 1989).

Figure 11

Preschool Girls (1-5 years) according to Gomez Classification in Different States



Source: Compiled from NNMB Rural Survey 1975 to 1980

Figure 12
Outcome of Maternal Nutritional Status for Self and Child

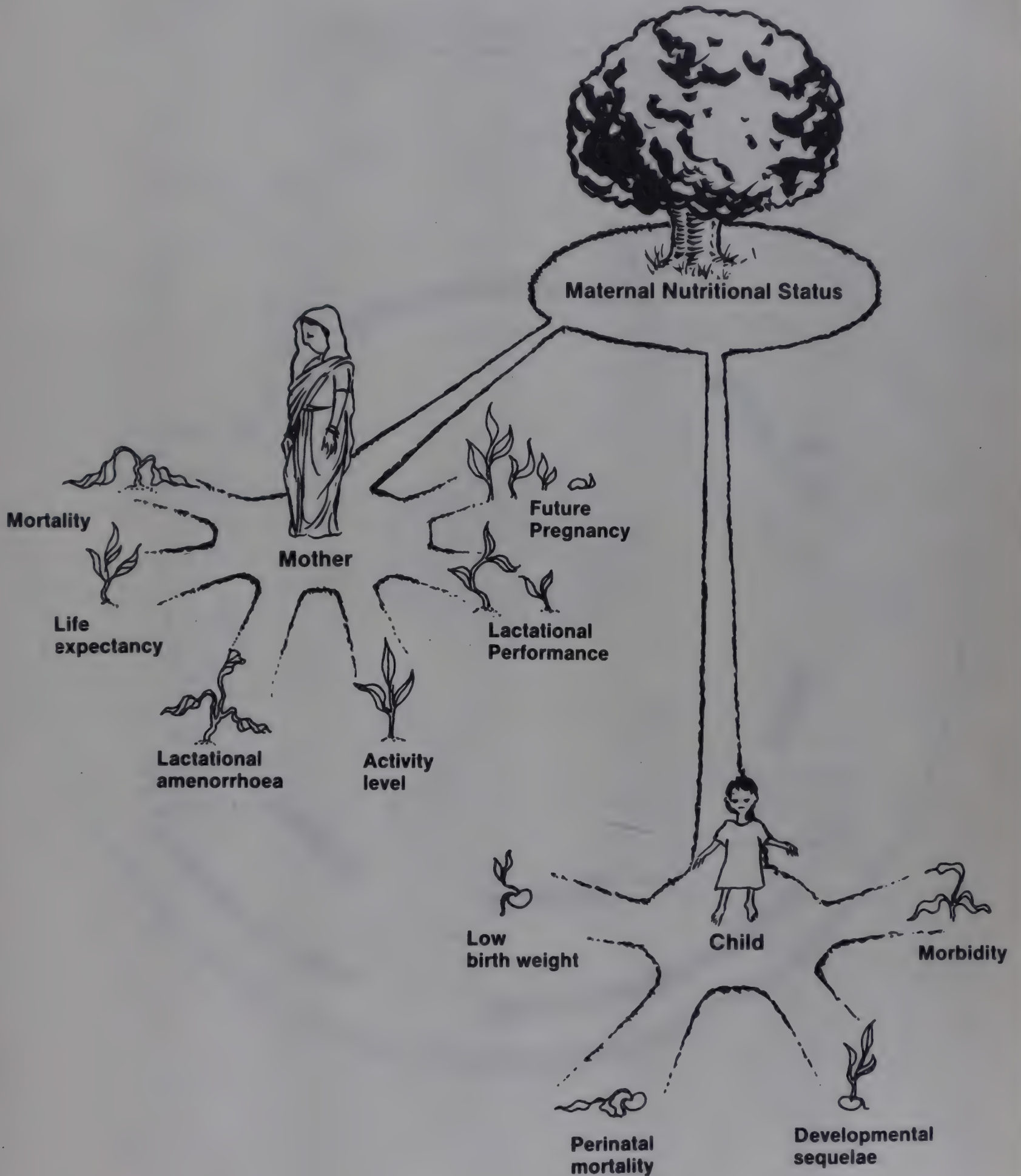


Figure 13

**Cyclical Intergenerational Influences
of Maternal Nutritional Status**

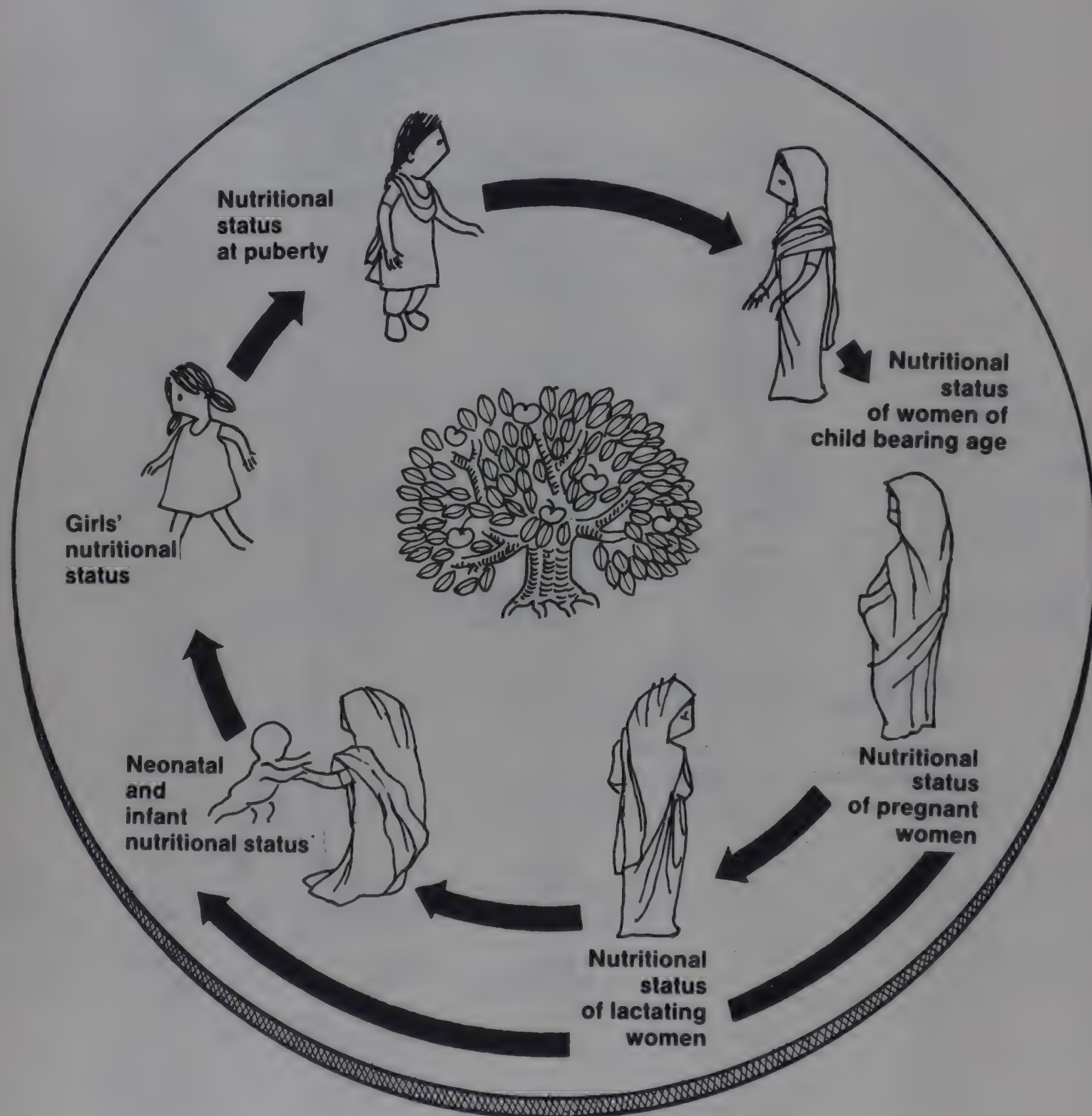


Table 3
Mean Intakes (% RDA) of Energy and Proteins by Indian Women and Girls of Different Ages and in Different States

States	Energy										Protein				
	Preschool	School age	Adolescent	Adult	Preschool	School age	Adolescent	Adult	Preschool	School age	Adolescent	Adult	Preschool	School age	Adolescent
	1-3	4-6	7-9	10-12	13-15	16-18	7	8	1-3	4-6	7-9	10-12	13-15	16-18	16-18
1	2	3	4	5	6	7		8	9	10	11	12	13	14	15
Kerala	52.5	55.9	57.8	55.8	64.3	64.2		77.1	64.0	72.3	58.2	45.1	49.3	49.0	68.4
Tamil Nadu	79.0	65.6	71.2	79.9	80.8	87.8		96.6	105.1	89.8	79.8	55.6	66.7	68.9	87.6
Karnataka	89.5	90.6	90.5	99.7	104.2	107.3		129.6	113.4	129.7	100.5	85.6	87.1	84.2	127.2
Andhra Pradesh	71.5	71.4	71.8	71.1	75.2	83.3		99.9	85.4	97.0	78.3	56.5	58.7	71.6	90.2
Maharashtra	65.5	76.8	76.3	77.0	76.7	77.6		100.0	86.0	120.0	89.8	70.6	73.1	68.4	106.6
Gujarat	83.5	78.6	68.7	90.5	83.3	82.2		97.1	108.7	113.6	79.7	65.7	75.9	69.8	99.0
Madhya Pradesh	86.6	69.6	77.3	69.9	78.6	83.1		98.7	135.6	115.7	103.5	68.5	80.1	84.1	114.6
Orissa	63.2	65.1	74.4	71.3	76.3	92.5		-	75.6	84.4	74.1	51.2	57.0	72.1	-
West Bengal	63.9	69.4	65.7	65.1	72.1	76.4		88.6	86.0	103.7	76.8	55.8	60.5	62.5	66.8
Uttar Pradesh	58.6	63.5	61.1	71.4	65.5	88.6		96.2	96.2	116.5	90.1	73.7	66.7	96.1	114.8

Source: NNMB Rural Survey (1975-80).

Table 4

Nutritional Status of Pregnant Women During the Third Trimester of Pregnancy

Group (according to childhood nutritional status)	Height (cm)	% with less than 140 cm	Weight (kg)	% with less than 40 kg	Arm circum- ference (cm)	Skinfold thickness (mm)	Haemoglobin (g/dl)	% with haemoglobin (less than 8.0g/dl)
1	2	3	4	5	6	7	8	9
Severely undernourished	148.6±1.02* (25)	5.9	46.3±1.04 (27)	35.3	20.3±0.44 (27)	9.5±0.50	9.4±0.36 (27)	11.8 (20)
Moderately undernourished	151.5±0.78 (44)	-	46.3±0.79 (37.0)	40.0	21.5±0.26 (37)	9.7±0.41	9.5±0.32 (35)	11.1 (17)
Mildly undernourished	150.9±0.78 (38)	1.6	47.2±0.87 (45)	18.0	21.5±0.26 (45)	10.6±0.50 (45)	9.7±0.29 (28)	4.9
Normal	155.7±0.99 (25)	-	50.2±1.12 (25)	6.7	21.9±0.33 (24)	10.0±0.75 (12)	9.3±0.39 (15)	10.0

Values are mean + SE.

Figures in parenthesis indicate number of women.

*P 0.05 as compared to normal.

Source: Ramachandran (1989).

Table 5

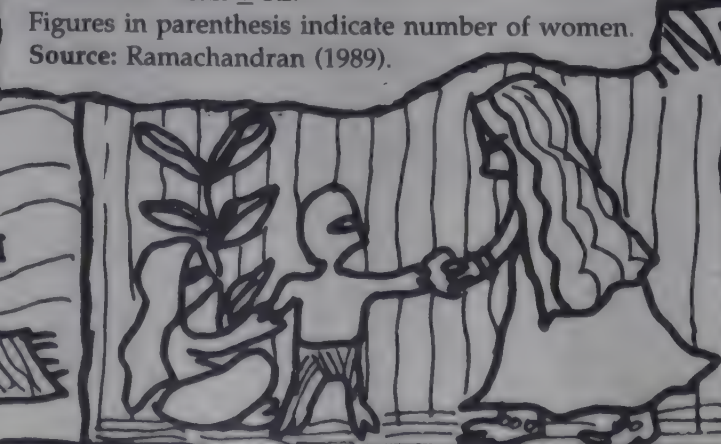
Maternal Nutritional Status and Effect on Pregnancy

Group (according to nutritional status in childhood)	Foetal loss (%)	Birth weight (kg)	Birth weight below 2.5kg	Death during infancy (%)
1	2	3	4	5
Severely (37) undernourished	11.8	2.41 ± 0.090	52.9	11.8
Moderately (49) undernourished	8.9	2.57 ± 0.065	42.2	8.9
Mildly (66) undernourished	8.2	2.55 ± 0.057	37.1	3.3
Normal (30)	3.3	2.62 ± 0.089	38.3	6.9

Values are mean ± SE.

Figures in parenthesis indicate number of women.

Source: Ramachandran (1989).



Malnutrition and Vulnerable Groups

Besides infants, preschool children, and pregnant and lactating mothers, certain socio-economic groups are more vulnerable than others to the ills of malnutrition.

Landless Labourers

It is ironic that the section of the population which contributes most significantly to agricultural production—landless agricultural labour—is the most severely afflicted by problems of poverty and malnutrition. Unorganised and at the mercy of their employers, they have no bargaining power as do industrial labourers. Seasonal work and low mobility further heighten their dependence on their employers. Attempts to provide them with land have failed because unscrupulous 'bosses' either appropriate the land or find ways of preventing them from tilling it. In a study by B. Srinivasan (1973), it was found that the earnings of 56.7 per cent of landless agricultural labourers were below the national minimum. NNMB data too shows that nearly 50 per cent of these families have an inadequate dietary intake.

Urban Slum Dwellers

The problem of malnutrition, particularly among children, is as severe in urban slums as in rural or tribal areas. About one-third of India's urban population in metropolitan cities resides in slums. Moreover, this population is growing at an alarming rate of more than 12 per cent per year.

Official health statistics of urban areas usually hide the appalling health and nutrition conditions of slum dwellers, most of whom are not recognised as 'official' residents of the cities. Not surprisingly, their nutritional status is an area that has hardly been examined except by a few studies. A study by the NIN, Hyderabad, showed that 92 per cent of preschool children in urban slums suffer from long duration malnutrition (NNMB 1984b). Another study conducted by USAID in Calcutta showed the average energy intake of slum dwellers to be lower than the city average by 170 K cals. Several studies by C. Gopalan have shown that the diets of slum dwellers are adequate only during the first week of each month. For the rest of the month, when the wages have been spent, the families live in a state of semi-starvation. Coupled with this are the insanitary living conditions which expose children to infections, thus exacerbating the problem.

In another study by the NFI (1984) of feeding practices in Calcutta, Madras and Bombay, it was found that commercial infant foods are used extensively by the



urban poor with deleterious effects on infant nutrition. According to C. Gopalan, it is the nature of the mothers' work which forces them to resort to these foods, thus denying their children breast milk. As a result, such children exhibit signs of PEM and marasmus earlier than others. A longitudinal study by M. K. Choudhuri of 3,000 urban children in Calcutta revealed the incidence of marasmus in 1.73 per cent, kwashiorkor in 0.19 per cent, PEM in 1.87 per cent, vitamin A and B deficiencies in 3.25 per cent, and active rickets in 2 per cent of the children. Not one child was found to be getting adequate calories. A study conducted by the NFI of children in urban slums in Calcutta and Jabalpur concluded that 'children of urban slums were certainly not strikingly better off than their rural counterparts. Urban migration had not provided them salvation from poverty and undernutrition.' A major contributory factor for this is of course reduced food availability due to lack of purchasing power. Unlike their rural counterparts, urban slum dwellers have to spend their meagre incomes on food as well as several essential non-food items.

A review of studies on urban slum dwellers reveals that their energy intake is far below the city average while they have a higher mortality rate and incidence of infectious diseases. With increasing rural-urban migration, these problems will only intensify unless special efforts are made to check them.

Tribal Communities

Tribal communities live in remote and inaccessible regions, making it difficult for intervention programmes to reach them. There are very few comprehensive studies on the nutritional problems of tribal communities. During the last few years some surveys have been conducted which reveal malnutrition among children to be the most glaring problem in these areas. The intake

of vitamin A has also been found to be very low, perhaps accounting for the prevalence of xerophthalmia. Nutritional anaemia has also been shown to be widespread, perhaps due to exposure to infections, repeated attacks of malaria and low intake of green vegetables. Studies of tribal communities in Orissa conducted by this author have found that an ecological imbalance caused by rapid deforestation has resulted not only in depleting food resources, but in prolonged droughts, adding to hunger and starvation.

Box 5

TRIBAL NUTRITION: AN ORISSA CASE STUDY

In Orissa, there are six million tribals who constitute 22.4 per cent of the population. While the problem of malnutrition exists in almost all parts of the state and amongst all sections of the population, the brunt of it is borne by the weaker sections, especially the tribals. The current nutritional status of the tribals is far from satisfactory and reflects inadequacies in the availability of food, in economic, and sometimes physical, access to the food that is available, in knowledge of the best way to use the available resources, and in health practices that affect biological use of the food that is consumed.

During the last few years, several surveys of varying precision and methodology have been conducted in some tribal pockets of the state to assess the food consumption patterns and the nutritional status of the tribals. One such survey of health and nutrition was made in Jaldih village among the Pauri Bhuinyas, a primitive tribe of Orissa. This study found the diet of the inhabitants to be deficient in both quality and quantity, and even the basic calorie requirements were not met. There was a 100 per cent deficiency of fruits and nuts—items that were in abundance till recently in the forests. Almost similar findings were observed among the Kondhs and Lanjia Saoras of Orissa.

The village Jaldih lies about 8 km from Koira, in the hilly areas of Bonai sub-division of Sundargarh district. The village is completely isolated and is accessible only by a four-hour journey uphill on foot. Thickly wooded hills of the Malayagiri mountain range separate this village from Koira, the nearest urban market centre. This geographical barrier dissuades doctors and local officers from visiting the village.

The incidence of malnutrition here was found to be very high, especially among children and infants: 14.4 per cent of the total population surveyed comprised malnourished children in the age group 0

to 14 years, with typical clinical signs (frank nutritional deficiency). Nutritional anaemia due to iron, folic acid or vitamin B12 deficiency was most common among women of childbearing age. Nutritional deficiency was detected in 5.1 per cent women in the age group 24 to 44 years, while no male case was detected in the same age group.

In their dietary habits, the Pauri Bhuinyas showed a marked preference for rice. As the amount of rice cultivated was inadequate, they subsisted on millets and fruits like jackfruit and mango in season. Edible roots, tubers, flowers, vegetables, mushrooms and other fruits collected from the forest supplemented their food to a great extent, especially during the lean months. Hunting and fishing were viewed more as sport than as a source of food. The nutrient composition of an average Pauri Bhuinya diet showed a calorie and protein deficit of 18.7 and 47 per cent, respectively. Other minerals and vitamins were also lacking in their diet.

The survey revealed that the diet of the majority of households was both qualitatively and quantitatively deficient. The morbidity pattern of the community depends mostly upon its nutritional status and on the intake of food. The survey in the Bhuinya village showed a high incidence of diseases caused by nutritional deficiency. However, it was very difficult to ascertain and clinically confirm the cases of protein energy malnutrition (PEM) in adults. Among children, malnutrition was a rule rather than an exception. In addition to PEM, the population surveyed showed physical signs of deficiency of one or more nutrients to a varying degree with its clinical manifestations.

Like any other tribal village, the mobility, choice, and even the thought processes of Pauri Bhuinyas were largely governed by the social rules prevalent in the village. Very often traditions coupled with irrational thinking deprived the Bhuinyas from consuming nutritious foods.

For instance, as cows were never milched, the Bhuinyas never drank milk. Contact with non-tribals has also affected their dietary customs. The Pauri Bhuinyas have given up eating pork and beef ever since they came into contact with the Hindus.

Activities in most tribal societies centre around the problem of finding food. Food collection is in turn influenced by many ecological factors and environmental conditions. Some ecosystems are rich in food and others deficient. Dependence on the natural habitat through food gathering activities, particularly in a tribal society, is a strong disincentive to migration from the parent habitat. The consumption pattern, as well as availability of food, is dependent on the local resources or on attempts by the tribals to produce food.

Primitive tribal groups generally depend on upland agriculture and collection of minor forest produce. The food that the food gatherers and hunters consume may be more nutritious and less scarce compared to those tribal communities who practice incipient agriculture, because the hunting and gathering group is usually smaller and the environmental resources are generally vast. It is very often observed that these conditions undergo a change depending on the interactions of the tribes with stronger groups—the mainstream population which generally intrudes upon their habitats and, with the added advantage of a higher level of agricultural technology, controls the resources and eventually the lives and lifestyles of the tribals.

As substantial funds have been earmarked for the all-round development of tribals, including improvement in their health and nutrition, it is imperative that the dietary habits and nutritional status of different tribal groups are studied in depth in order that the developmental inputs are optimally utilised and the nutritional problems faced by the tribals are resolved.

The problem of malnutrition among the tribals can be said to be caused by a number of factors. Widespread poverty, illiteracy, traditional food taboos, a hostile and inaccessible environment, regional imbalances in food production and seasonal variation, lack of sanitary facilities and safe drinking water, inability to seek out health intervention programmes—all these contribute to the deplorable conditions prevailing among tribals today. Let us also not forget that even when these areas are exposed to the outside world and the mainstream population through agricultural and technological interventions, the original inhabitants have little control over the changes, no access to the benefits, and merely recede into the background, only to subsist on even more scanty resources.

Review of Approaches, Strategies and Programmes Adopted to Combat Malnutrition in India

In pre-Independent India, undernutrition was perceived as a medical problem requiring hospital-based medical interventions for cure and rehabilitation. These interventions only rarely stressed the importance of antecedent factors such as poverty, even though they were well-known. As early as 1876, Dadabhai Naoroji had estimated the level of poverty in India using food intake statistics and calculating what it cost to buy foods adequate in calories and proteins. In those days food supply and its distribution were largely the concern of administrators who were well-acquainted with the country's history of recurrent famines. It was after the Great Bengal Famine in 1943 that food management policy assumed importance and took shape during the post-war years. During the pre-Independence period, relief work and camps to provide food during famines, droughts or floods were also well established.

There emerged in the late 1940s and early 1950s three new approaches to the problem of malnutrition which became firmly established during the 1960s. First, the agricultural approach which viewed malnutrition as a problem of inadequate food supply in the national aggregate and thus advocated increasing food production. It was not mere coincidence that this was the prevalent view at a time when agriculture was being given a boost in the form of technical and financial inputs, leading to the Green Revolution. Despite existing knowledge of the localised nature of famines and droughts, little attention was paid to eliminating regional imbalances in food production.

In addition to the perception of the inadequacy of food supply, recognition of its maldistribution among the population led to the second approach to the problem of undernutrition. This was the implementation of large-scale feeding programmes for preschool and school-going children and pregnant and lactating women, who were considered most vulnerable to malnutrition. It was expected that increasing total food production would take care of the masses, and that targeted feeding schemes would take care of the residual problem in a short span of time. Although supplementary feeding programmes have stayed with us to this day, they were originally seen as a temporary measure as the problem of malnutrition was never deemed to be as complex and widespread as it actually was.

The third approach was the development of the food processing industry. This was the era of the 'protein gap theory' which found expression both in the emphasis on development of better protein quality in agricultural crops, and of protein-rich processed foods and protein-based supplements. Under the influence of Western technology and multinational corporations, we failed at the time to ask who consumed these highly processed products; why so many remained malnourished, for whom and for what reasons was it being manufactured, and what impact did it have on the nutritional scenario of the country?

These three broad approaches formed the core of later integrated efforts which began to evolve through accumulated knowledge about the multiple causes of malnutrition and were mirrored in the country's Five-Year Plans. Thus, the magnitude of the problem of malnutrition in India came to be recognised with the inception of these plans and a number of schemes were introduced to combat it.



The First Five-Year Plan (1951-1956) concentrated on public health measures for the prevention of nutritional deficiencies, including maternal and child feeding and school feeding programmes. During this Plan, the thrust was on increased food production, the production of vitamins and the prevention of food adulteration. These measures were reiterated during the Second Five-Year Plan (1956-1961) which stepped up the 'welfare approach' to nutrition by encouraging non-governmental agencies to undertake supplementary feeding schemes with assistance from the Central Social Welfare Board. By the Third Five-Year Plan (1961-1966), integration and coordination between the health, agriculture, social welfare and education departments began to be stressed in addressing the problem of malnutrition. The Plan introduced the first National Nutrition Scheme in 1965, the Applied Nutrition Programme (ANP), which was rooted in the prevalent philosophy of community development. The ANP combined a demonstrational approach for food production at the village level (kitchen gardening) with supplementary feeding for mothers and children. It included, however, a new element, nutrition education. During this period the health sector continued to concentrate on the treatment of severely malnourished children who presented themselves at health centres, and on preventing specific nutritional disabilities such as anaemia and nutritional blindness. For these, it launched national prophylactic programmes but paid little attention to the widespread problem of chronic calorie deficiency. The National Goitre Control Programme was introduced during this Plan period.

The Fourth Five Year-Plan (1969-1974) included four types of interventions directed towards the improvement of nutrition: maternal and child health services, supplementary feeding, nutrition extension and education, and food processing. Programmes were also launched to combat morbidity due to nutritional anaemia and vitamin A deficiency. For this, the National Programme for Prophylaxis of Nutritional Blindness was launched. During 1970-71, the Special Nutrition Programme (SNP) for preschool children and pregnant women and nursing mothers was introduced. These programmes continued during the Fifth Five-Year Plan period (1974-1979) under different sectors: food processing under the Department of Food, supplementary feeding schemes for the vulnerable groups under the Social Welfare Department, school midday meals under the Department of Education, nutritional prophylaxis under Health Services, and nutrition education under the Department of Community Development. Coordination committees were also established and the need for evaluation of programmes stressed.

While a major lesson had already emerged from the Applied Nutrition Programme—that multisectoral schemes are integrated on paper alone, being extremely difficult to implement in the field—the Fifth Plan nevertheless introduced another intersectoral effort for nutrition. The

The Five Year Plans

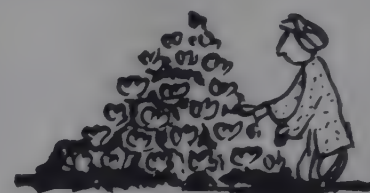
1st Plan
1951-1956



2nd Plan
1956-1961



3rd Plan
1961-1966



4th Plan
1969-1974



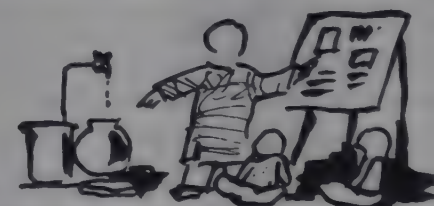
5th Plan
1974-1979



6th Plan
1979-1984



7th Plan
1984-1989



Integrated Child Development Services (ICDS), a unique programme in which all health and nutrition activities essential for the promotion of child health and development were integrated and delivered as a package to mothers and children, was launched in 1975 in thirty-

three experimental blocks. This has since been extended to over 2,000 administrative blocks in the country and is today considered India's major effort towards the improvement of nutrition.

Despite the shift from ad hoc and isolated programmes to integrated intersectoral efforts, the problem of malnutrition continues to loom large. The most important questions which emerge are: what has been the impact of these programmes on the health and nutrition status of the population during the last forty-four years since Independence, and, has there been any measurable documented improvement in the nutritional status of the Indian population? There is no easy answer as there is little carefully compiled data which can provide an all-

India profile of the nutritional status and the trends of change over time. Thus, actual results achieved in terms of improvement in nutritional status and the reduction in different forms of undernutrition which could be directly attributed to the impact of these intervention programmes are virtually impossible to assess satisfactorily.

One must also be wary of the statements put forward in scientific, academic and government circles. They either exaggerate the number of people suffering from malnutrition and are sceptical about the real impact of these programmes on nutritional status, or they tend to claim that malnutrition is no longer visible in the countryside because of the miraculous interventions

Box 6

TAMIL NADU'S MIDDAY MEAL PROGRAMME

Since 1982, Tamil Nadu has been running a massive and remarkable feeding programme for children, old-age pensioners, ex-servicemen and their widows and destitutes. Several nutrition programmes were initiated earlier for vulnerable groups, like pregnant and lactating women, infants, preschool and school-going children. But the present scheme is a radical departure from the earlier ones, as it aims at providing one nutritious meal every day of the year to all the needy children in the age group 2 to 16 years at the government's expense. It is perhaps the largest mass nutrition programme of its kind to be undertaken anywhere in the world.

The colossal task was designed to bring about a significant change not only in the nutritional status of the children but also in their family's development and social environment. It was criticised by some for its populism, financial burden on the exchequer and the scope for corruption and mismanagement. Over the years it has acquired respectability, so much so that subsequent governments have not withdrawn it. They have in fact added new features to it. Assuming the role of a welfare state when the concept was increasingly coming under attack, the state government argued on the basis of the fundamental fact that removal of hunger has to be the primary goal of development.

Every weekday more than 87 lakh people are fed a hot meal at 68,000 centres located in every city, town and village. The meal is designed to contribute one-third of the nutritional requirements. It consists of parboiled rice, red gram (*tuvar*) or *masoor dal* and vegetables cooked with a small quantity of oil and condiments. Twice a month the children are provided with a hard boiled egg each. The supplies are delivered by the cooperatives or government stores to the centres according to the following norms:

Quantity in Grams per Beneficiary

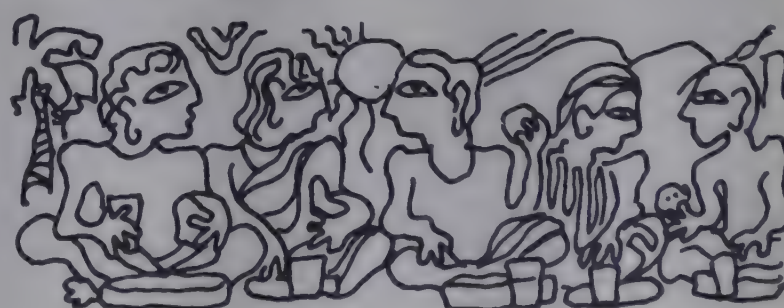
Ingredients	Preschool	Class I to VIII	Class IX to X	Aged persons
Rice	80	100	120	200
Dal	10	15	15	15
Oil	3	3	3	3
Vegetables and condiments	50	50	50	50

Utilising the food ingredients, about twenty-eight recipes for a four-week cycle have been standardised to ensure taste, variety and ease in handling and serving. Hunger does not take a day off—hence, a meal every day of the year. If the next day happens to be a holiday, the children are provided with packed lunches to take home.

The added incentive is to attract children to attend school. The focus of the programme has also been to foster sound social behaviour and attempt to dispel feelings of differences among various castes. The *anganwadi* and the *balwadi* teachers are better able to impart information about the nutritive value of food to the children. The meal thus becomes a means of raising general consciousness besides providing employment to poor women.

Under the scheme, the government appoints a nutritious meal organiser, a part-time cook and a helper to organise, prepare and serve the meal at a centre with beneficiaries numbering not more than 500. Beyond 500, there is a provision for one more cook and a helper. These part-time, permanent government employees are supposed to attend to their duties throughout the year.

The widespread support that the midday meal scheme has received is not simply because there are tangible statistics to prove its impact on the health standards of the state, but because it has an emotional and cultural appeal. In the absence of perennial rivers, precarious agriculture and images of famines, hunger became a dominant issue in the collective psyche of Tamil Nadu. In the political rhetoric, hunger was viewed as the outcome of unequal distribution and an issue with strong social overtones. As the impact of natural calamities is minimised due to the Midday Meal Programme and the children appear healthier, the criticism of the programme in terms of bad management, economic non-feasibility and corruption becomes a non-issue.



introduced by the government. Such confusion and controversies arise primarily because of insufficient authentic and scientific studies on the issue.

The measures adopted during the Fifth Plan continued into the Sixth Plan period as well. During the Seventh Five-Year Plan, steps were taken to bring the Special Nutrition Programme centres outside the ICDS scheme within the ambit of the ICDS by upgrading them or by linking them with other inputs like health, sanitation, hygiene, water supply and education.

The following major nutrition programmes are being implemented in India today:

- Integrated Child Development Services (ICDS) Scheme
- National Nutritional Anaemia Prophylaxis Programme
- National Goitre Control Programme
- National Programme for Prevention of Nutritional Blindness due to Vitamin A Deficiency
- Midday Meal Programme
- Special Nutrition Programme (SNP)
- Applied Nutrition Programme (ANP)

Apart from these, a massive supplementary feeding programme addressed to all poor children in Tamil Nadu between the ages of 2 and 14 years was initiated

in 1982 by the then Chief Minister, M.G. Ramachandran, and the programme has come to be known as the Chief Minister's Noon Meal Programme or the Tamil Nadu Noon Meal Programme. This programme is not dependent on external support or funding. It was admittedly based on a political decision at the highest level during MGR's rule and was justified on compassionate rather than hard economic grounds.

Mention should also be made of the now well-known Tamil Nadu Integrated Nutrition Project (TINP) which was started in 1980 with World Bank assistance with the objective of increasing the efficiency, coverage and impact of government nutrition and health efforts by extending a package of nutrition, health and communication services to the beneficiaries. Unlike other programmes, the nutrition component of TINP has certain innovative features which make this project different from others.

Besides these, there are several smaller nutrition programmes which are also being implemented. International agencies like CARE, WFP, OXFAM and DANIDA are also supporting and/or organising supplementary nutrition programmes. The aim of all such programmes is to provide additional nutrients to target groups to fill the gap between their intake and requirements. The



supplementation of vitamin A, iron, iodine, proteins and calories are examples of this strategy. In general, the main beneficiaries of nutrition programmes are the nutritionally vulnerable preschoolers, school children and pregnant and lactating mothers who together constitute about 40 per cent of the total population.

Integrated Child Development Services (ICDS) Scheme

In pursuance of the national policy for children and in order to provide an integrated approach to meet the health, nutrition and education needs of children below 6 years of age, the ICDS programme was launched in 1975 in thirty-three blocks of the country on an experimental basis. The success of the scheme stimulated its expansion to 1,952 projects by the end of March 1989, and at present there are more than 2,000 ICDS projects in

operation in the country covering over 6 million pre-school children and 2 million expectant and nursing mothers. ICDS is a multisectoral programme and involves several government departments whose services are coordinated at the village, block, district, state and central levels. The primary responsibility for the implementation of the programmes lies at the centre with the Department of Women and Child Development, Ministry of Human Resource Development. The beneficiaries are children below 6 years, pregnant and lactating mothers and women in the age group 15 to 44 years.

The objectives of the programme are:

- Improvement in the nutritional and health status of children below 6 years of age
- Laying the foundation for proper psychological, physical and social development of the child
- Reduction in the incidence of mortality, morbidity and malnutrition, and the school drop-out rate

Box 7

KASHTACHI BHAKAR

If malnutrition among the rich is due to paucity of right information, the poor face the brunt of nutritional deficiency for the lack of purchasing power. Moreover, the law of averages that is the byword of scholars and planners does not always emphasise the caloric requirement for people with different levels of physical output. An interesting programme based on these two assumptions is the Kashtachi Bhakar run by the hamal panchayat in Pune which offers adequate nutrition at affordable prices.

It began in the mid-1970s through the initiative of Dr Baba Adhav, a doctor by profession and a trade unionist by vocation. In the course of organising hamals (coolies), he realised that despite hikes in wages, right and healthy working conditions were not forthcoming. He believed that a male hamal needs a minimum of 3,600 to 4,000 calories per day and a working woman needs 3,000 calories a day. The present wage structure, based on a minimum requirement of 2,500 calories per day, did not allow hamals the requisite nourishment.

Irregular timings and bad working conditions forced hamals to seek means to pacify their hunger and thirst with food of low nutritive value, tobacco and alcohol. Hamal panchayat believed that to wean its members from the spectre of

slow death and to assure them a healthy and long working life, it had to provide the facilities for low-priced nutritious meals. Thus began a community kitchen run by the hamals themselves which highlights the dignity of labour. In Marathi, *bhakar* means bread and *kashtachi* means earned by labour.

Kashtachi Bhakar provides clean and healthy food each day from 6:30 am to 10:30 pm at eight distribution centres selected notably for easy accessibility. The centres are located near the railway station, bus stands, markets, hospitals, hostels and all those places which common people like coolies, truck drivers, small farmers, merchants and students frequent. As the fame of Kashtachi Bhakar spread for providing clean, healthy and delicious food at reasonable rates, an increasing number of people began to avail of its facilities. These include middle class families and organisers of seminars and workshops.

Each centre has a seating capacity of thirty to forty persons and has a good drinking water supply system. The kitchens, though small, are scrupulously clean. Leaf plates and bowls are used to serve food, a clean and healthy way of saving time. The organisation has its own flour mill, a kneading machine and a pounding machine. The workers are constantly instructed on ways to increase the nutritive

content through proper cooking practices. The success of these community kitchens is exemplified by the daily sales of nearly Rs 12,000.

Over 110 women, mostly destitute and poor, have been provided gainful employment. There are over forty males working as cooks, drivers and managers. The workers, apart from their salaries, receive all other benefits including the facilities of a free dispensary. However, the organisation is still striving to improve their living conditions. A happy working environment has been found to be conducive to the productivity and performance of the team. For not a single day has the operation of cooking and feeding stopped.

This idea of a community kitchen is spreading and similar efforts have been initiated in Kolhapur, Jalna, Ahmednagar and Amravati.

As the guiding principle of this endeavour is 'self-earned dignity', no charity or donations are accepted. Except for a plot of land from the Pune Municipal Corporation, no help has come from the government. Except for the year 1986-87 when there was a sharp rise in prices, the organisation has not made any losses. It is self-sufficient, always on the plus side and eagerly awaiting expansion into other social activities, one of them being the establishment of fair-price shops.

- Effective coordination of policy and implementation amongst various departments providing developmental services to children
- Enhancement of the capability of the mother to look after the normal health and nutritional needs of the child through proper nutrition and health education

The services provided through this programme include:

- Supplementary nutrition
- Immunisation
- Referral services
- Nutrition and health education
- Non-formal preschool education

The focal point in the delivery of the ICDS package of services is the *anganwadi* (AW) in every village. On average, there is one *anganwadi* for a population of about 1,000 in rural/urban areas and 700 in tribal areas. The *anganwadi* worker (AWW) is usually a woman who resides in the same village in which she works. The ICDS is the most extensively and intensively evaluated programme in the country. It has now been well-established that the ICDS has a positive impact on the nutrition and health status of the women and children who are its beneficiaries.

Weaknesses of the programme include:

- Lack of effective coordination between different agencies implementing the ICDS scheme
- Inadequate understanding by the ICDS staff regarding priorities among different service components of the scheme
- The AWW is often bogged down with numerous activities, some of which are not as important as others. Some of the tasks that are given relatively more attention are weighing of children, growth monitoring (without understanding the concept and logic behind this operation), keeping records, and non-formal education of children above 3 years of age
- The AWW is expected to meet set targets for organising people for family planning measures and is subjected to disincentives in the form of pay cuts if she is unable to meet the target. This has resulted both in her becoming unpopular with the community and in her being dissatisfied with her own job (NFI 1988)
- The supply of supplementary food has been reported to be irregular in some project blocks due to administrative reasons or due to difficulties in transport and communication

- The vaccines, iron and folic acid tablets, vitamin A, etc., have often been reported to be in short supply which hinders full coverage of the beneficiaries
- There is often a gap between the sanctioned staff and those actually working in the ICDS projects. Certain important posts like child development project officers (CDPOs), supervisor/*mukhya sevikas* and *anganwadi* workers are lying vacant in some of the project blocks
- The quality of training of AWWs requires improvement
- It has repeatedly been found that the 'above threes' are the main recipients of the *anganwadi* services, whereas it is the unreachable 'under threes' who require greater attention
- Nutritional therapy for the severely malnourished is not implemented properly. They are not given increased amounts of supplementary food or any special therapeutic supplementation in some of the project blocks
- The system of referral to the primary health centre and above is unsatisfactory and it is this component which is one of the weakest points of the ICDS programme
- The home visits by AWWs are infrequent. The malnourished children who cannot come to this centre for a variety of reasons usually remain uncovered
- The growth monitoring activities usually cover only detection of malnutrition or identification of potential beneficiaries needing supplementary feeding. They fail to measure the awareness of mothers on how to detect early growth faltering (as early as in grade 1 itself) and to take corrective remedial measures for the prevention of malnutrition at this stage
- The Nutrition Health Education (NHE) component of the ICDS is weak and requires imaginative reorganisation
- It has also been found that the food supplement given to pregnant and lactating women is shared by their children, thus reducing their food intake
- Much more attention needs to be paid to the identification of all pregnant women, and to the regular delivery of the package of services (especially Folic acid tablets and food supplements) to these women as soon as pregnancy is established, through delivery, and six months of lactation. Nutritional anaemia in the mother not only increases the risk of low birth weight babies, but also results in the low birth baby remaining on a lower nutritional plane for the next three years of his life in spite of the best efforts subsequently to improve his status.

Areas of strength:

Despite these weaknesses, the ICDS is the largest multisectoral programme in Asia aimed at child development. It has provided the maximum data on the nutritional status of preschool children; it has a very effective monitoring system in which data collected by the AWW is compiled, analysed and tabulated, and made available to the programme implementors for appropriate intervention within forty-five days. The ICDS has proved to be a successful model for the delivery of early childhood health, nutrition and education services. Some strategies to combat the weaknesses mentioned above have been discussed in the last section of this paper.

National Nutritional Anaemia Prophylaxis Programme (NNAPP)

Nutritional anaemia is one of the major health problems affecting women and children in India. Recognising the importance of prophylactic measures like supplementation with iron and folic acid to prevent the development of overt anaemia, the NNAPP was launched in 1970. Expectant and nursing mothers and preschool children were given tablets containing iron and folic acid, the daily recommended dose being one tablet containing 0.1 mg of folic acid and 60 mg of ferrous sulphate for children. Expectant and nursing mothers are given one tablet a day containing 0.5 mg of folic acid and 100 mg of ferrous sulphate during the last trimester of pregnancy and for the first six months after delivery. This programme is being implemented by all institutions involved with family planning and/or welfare services like primary health centres (PHCs) and their sub-centres, maternity and child hospitals, etc. In areas where ICDS is in operation, the AWW is responsible for the distribution of iron and folic acid tablets. During 1987-88, 17.65 million mothers and 17.68 million children were given iron and folic acid tablets.

The major objective of the NNAPP is to prevent overt anaemia. The specific objectives are:

- To assess the baseline prevalence of nutritional anaemia in mothers and young children through estimation of haemoglobin (Hb) levels
- To put those mothers and children with low Hb levels (less than 10 g/dl and 8 g/dl, respectively) on anti-anaemia treatment
- To put the mothers with Hb level more than 10 g/dl and children with Hb more than 8 g/dl on the prophylaxis programme
- To continuously monitor the quality of the tablets, distribution and consumption of the supplements, and to periodically assess the Hb levels of the beneficiaries



- To motivate and educate the mothers about the advantages of consuming these tablets

The Ministry of Health and Family Welfare conducted a nation-wide evaluation of the NNAPP, the findings of which are discouraging. An all-India evaluation of the NNAPP is currently being carried out in order to provide a factual data base on which this programme can be restructured and strengthened.

Areas which need to be strengthened:

- The specific objectives and goals of the programme should be defined for effective implementation and monitoring
- While the programme requires estimation of haemoglobin levels, the functionaries are not provided with facilities to carry out Hb estimation
- Implementation and monitoring of the programme requires to be strengthened
- The iron and folic acid tablets are distributed on demand rather than actual need identified by Hb estimation

National Goitre Control Programme (NGCP)

The National Goitre Control Programme (NGCP) was launched by the Government of India towards the end of the Second Five-Year Plan in 1962.

There are three main objectives of the programme:

- Survey of goitre in suspected areas to identify endemic goitre areas
- Production and supply of iodised salt to the endemic areas
- Resurvey after five years of continuous supply of iodised salt in the endemic areas to assess the impact of the programme



The universal iodisation of edible salt began in 1986 in a phased manner and the present strategy is to completely replace edible salt with iodised salt by 1992.

Weaknesses of the programme:

- Irregular distribution of iodised salt for varying periods
- Lack of supervision of the quality of iodised salt distributed
- Failure by wholesale agents of allotted quotas of iodised salt to lift for further distribution to the retailer
- Poor interpersonal relationship between salt dealers and the food inspector, the implementors of PFA Act
- Poor coordination between the Departments of Food and Civil Supplies, Health, and wholesale dealers

National Programme for Prophylaxis against Blindness due to Vitamin A Deficiency (National Blindness Control Programme)

The National Programme for Prophylaxis against Blindness due to Vitamin A Deficiency was launched in 1970. This programme includes children in the age group 1 to 5 years who are given a massive oral dose of 2 lakh IU of vitamin A in oil every six months. The vitamin A is readily absorbed and stored in the liver from where it is gradually released for utilisation by the tissues. The programme is implemented by the Department of Health and Family Welfare and is an integral part of the Maternal and Child Health (MCH) programme. During 1986-87, the programme had reached 30.24 million children in the age group 1 to 5 years and during 1987-88 about 45.13 million doses of vitamin A were administered.

The main objectives of the programme are:

- Reduction in the incidence of the problem
- Prevention of blindness due to vitamin A deficiency

The findings of an evaluation study conducted by the National Institute of Nutrition (NIN) in thirteen states (Vijayraghavan and Rao 1978) revealed that:

- Massive doses of vitamin A appeared to be effective in reducing the prevalence of Bitot's spots in children
- Maintenance of records on receipt of vitamin A and coverage of children was far from satisfactory
- Supplies to many areas did not meet the requirements
- The education component was missing from the programme

Weaknesses:

- A national evaluation of the programme is necessary and is yet to be undertaken
- A recent evaluation of the prophylaxis programme has revealed that monitoring and supervision are its weakest points (Reddy et al. 1986)
- In India, where a universal distribution strategy has been adopted, children with xerophthalmia and those high risk groups most in need of vitamin A are often neglected (Vijayraghavan and Reddy 1987)
- The current vitamin A dose in an oily base is found to be unpalatable
- The white spoon is an inaccurate and unhygienic means of dispensing the vitamin A syrup



- One of the major setbacks to the programme is the irregular and short supply of vitamin A (Reddy 1980)

covered a population of 209 lakhs (126.4 under the non-plan and 82.36 under the plan target).

Midday Meal Programme

In 1962-63, the Government of India initiated a scheme to provide midday meals to primary school children of low socio-economic status to raise their nutritional status as also their enrolment in school. Through this programme, food is distributed to each child for 180 to 200 a year and 300 to 400 calories and 12 to 15 gm of protein is provided to each child. By 1988-89, this scheme had

Objectives:

- To supplement the diet of school-going children
- To raise the nutritional status of primary school children, particularly those belonging to low socio-economic groups
- To improve attendance and enrolment in schools

- To reduce the drop-out rate in primary schools

Evaluation:

- Various studies have found the implementation of this scheme to be both fairly efficient (CARE 1973, 1974, 1979) as well as inefficient (CARE 1975; Roy and Rath 1971)
- The total number of months of participation has emerged to be the most significant determinant of school attendance (CARE 1979; Sahn et al. 1981)
- The calories and protein intake among beneficiaries under this programme has been found to be higher than their non-beneficiary counterparts (CARE 1979; Devdas and Premkumari 1978; Gopaldas and Kanani 1983; Kanani and Gopaldas 1988; Roy and Rath 1971)
- The programme has a positive effect on the anthropometric status, haemoglobin levels and clinical signs of nutritional deficiencies among school children
- No appreciable impact is seen on the scholastic performance of children

Weaknesses:

- Poor logistics and supply of food
- Lack of proper cooking utensils
- Adulterated food
- Poor outreach
- Poor community participation
- Lack of training of school staff to handle the logistics of the programme
- Health services and nutrition and health education are missing from the programme

Special Nutrition Programme (SNP)

The Special Nutrition Programme (SNP) was started in 1970-71 by the Department of Social Welfare as a supplementary feeding programme with central assistance. The major beneficiaries are preschool children, expectant and lactating mothers. The children are given supplementary food which provides 300 calories and 10 to 12 gm of protein, and the mothers receive 500 to 600 calories and 20 to 25 gm protein per day. At the end of 1973-74, the SNP was shifted to the state sector and by the end of the Fifth Plan (1974-78) the coverage had reached 5.73 million beneficiaries.

The main objectives are to:

- Provide supplementary nutrition, and
- Provide health services including supply of vitamin A solution and iron and folic acid tablets

Although the SNP has not been evaluated on a representative scale, several studies conducted in different

parts of the country on the working, cost effectiveness and impact of SNP on its beneficiaries revealed the following:

- Target beneficiaries are not selected on the basis of nutrition deficiency disorders
- Absence of community involvement
- Food is shared by non-beneficiary members
- High overhead administrative expenses as also pilferage and corruption are not unknown
- No priority is given to children belonging to the 0 to 3 years age group as originally planned in view of the difficulty of bringing these children to the feeding centres
- No appreciable impact is seen on the improvement of the nutrition status of the beneficiaries because of the absence of proper integration with other programmes like employment and income generation, drinking water, hygiene and sanitation

Applied Nutrition Programme (ANP)

The ANP was first introduced in Orissa and Andhra Pradesh in 1960. It was extended to Tamil Nadu in 1961, Uttar Pradesh in 1962, and by 1973 the programme had covered all states. Children between 2 and 6 years of age and pregnant and lactating women are the target beneficiaries.

The main objectives of the ANP are:

- To make people conscious of their nutritional needs
- To increase production and consumption of nutritious foods
- To provide supplementary nutrition to vulnerable groups through locally produced foods

The specific activities of the programme include:

- Supplementary feeding
- Non-formal preschool education
- Nutrition education
- Poultry farming
- Beehive keeping
- Providing better seeds and seedlings
- Raising kitchen gardens

Studies have shown that:

- The programme has not generated the desired awareness for the production and consumption of protective foods
- Community kitchens and school gardens could not be taken up or completed due to lack of suitable land, irrigational facilities, and low financial investments

The major nutrition programmes discussed here are being implemented by the Ministry of Human Resource Development and the Ministry of Health and Family Welfare. However, there are several other programmes implemented by the Ministry of Food and Civil Supplies which have a direct bearing on the nutritional status of the community. Under this Ministry, the Food and Nutrition Board (FNB) has several projects aimed at improving the nutritional situation in the country. Some of the programmes being implemented by the FNB are:

— Development of low cost weaning foods for supplementary feeding

— Education extension and publicity through:

- Mobile food and extension unit
- Food processing and nutrition centre
- Mass media publicity

— Fortification and enrichment programmes using foods like salt with iron, milk with vitamin A and sago with proteins, vitamins and minerals



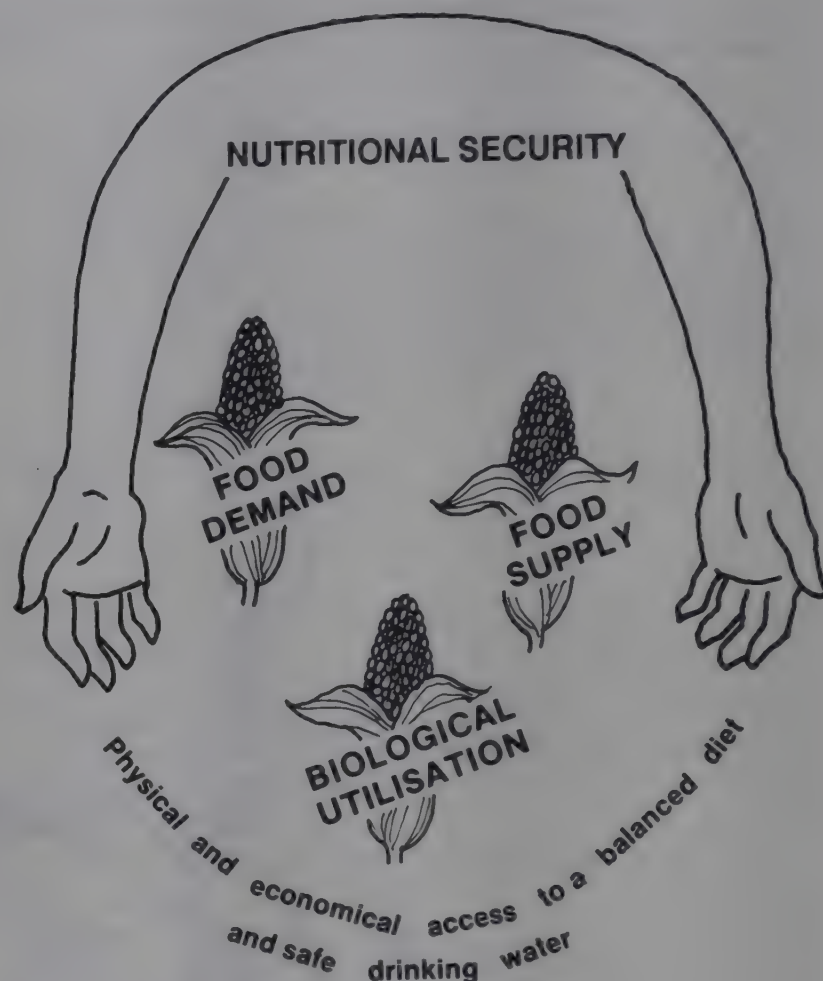
Combating Malnutrition: Policy Implications, Strategies and Recommendations

As malnutrition is the by-product of poverty and underdevelopment, any improvement in the nutritional status of the population can only take place as part of the all-round socio-economic development of the country. Isolated, vertical programmes targeted to one or other specific manifestation of undernutrition and programmes which do not address the basic underlying factors of poverty and underdevelopment can at best yield limited, short-term benefits and help temporarily mitigate only some aspects of the total problem. These supplementary feeding programmes, for instance, can in no way be the answer to the problem of chronic hunger among our starving children. It can, at best, be effective if it is built into an integrated primary health care system, as in case of the TNIP or ICDS, where the nutrition component is integrated with the health and other components and directed at target risk groups. But again, given the inputs which are required for the effective implementation of such a programme, it is unrealistic to expect that the needed resources for country-wide coverage of such a programme will be available. Indeed, such programmes can be harmful from a long-term perspective and may even tend to distract us from our main goal, i.e., eradication of poverty and undernutrition through socio-economic development.

During the last four decades, ad hoc measures have been undertaken by the health, food and agriculture, and social welfare sectors with marginal impact. It has now been realised that malnutrition is a multifaceted problem that needs a multisectoral strategy for its control. It is this recognition that has led to the felt need for a sound national nutrition policy to promote a coordinated nutrition strategy. The objectives of such a policy should be to overcome the dietary, socio-economic and environmental constraints, which lie at the root of the problem of malnutrition.

To combat the considerable gap between the demand and supply of foodstuff in our country, we need a sustainable nutritional security system which should aim to remove this imbalance through both short-term and long-term measures. Food security refers not only to the availability of food for direct consumption, but to the appropriate purchasing power on part of the people as well. This puts a responsibility on the government to purchase the foodstuff as also to devise employment generation schemes for the people. The concept of food security thus implies the implementation of policies for supplementing the food and nutritional requirements of the target groups. Thus, if nutrition security is achieved,

it can be assumed that the component of food security has also been included. Therefore, while the concept of food security is constricted, nutrition security seeks to cover a broader perspective which encompasses the nutritional implications of policies in three primary areas: food demand, food supply, and biological utilisation. Thus, nutrition security could then be defined as physical and economic access to a balanced diet and safe drinking water.



A national nutrition policy should include the following components:

- Achievement of national self-sufficiency in a range of essential foods (i.e., augmentation of food production)
- Sound public distribution system for essential foods (i.e., ensuring fair distribution of food so that the basic food needs of the lowest income groups are met)
- Control of growing population (i.e., promotion of family welfare/family planning programmes and programmes aimed at curbing rapid population growth)
- Universalisation of elementary education and nutrition and health education (i.e., promotion of education and literacy, especially among girls and women, through the primary school system and through innovative programmes for non-formal education)

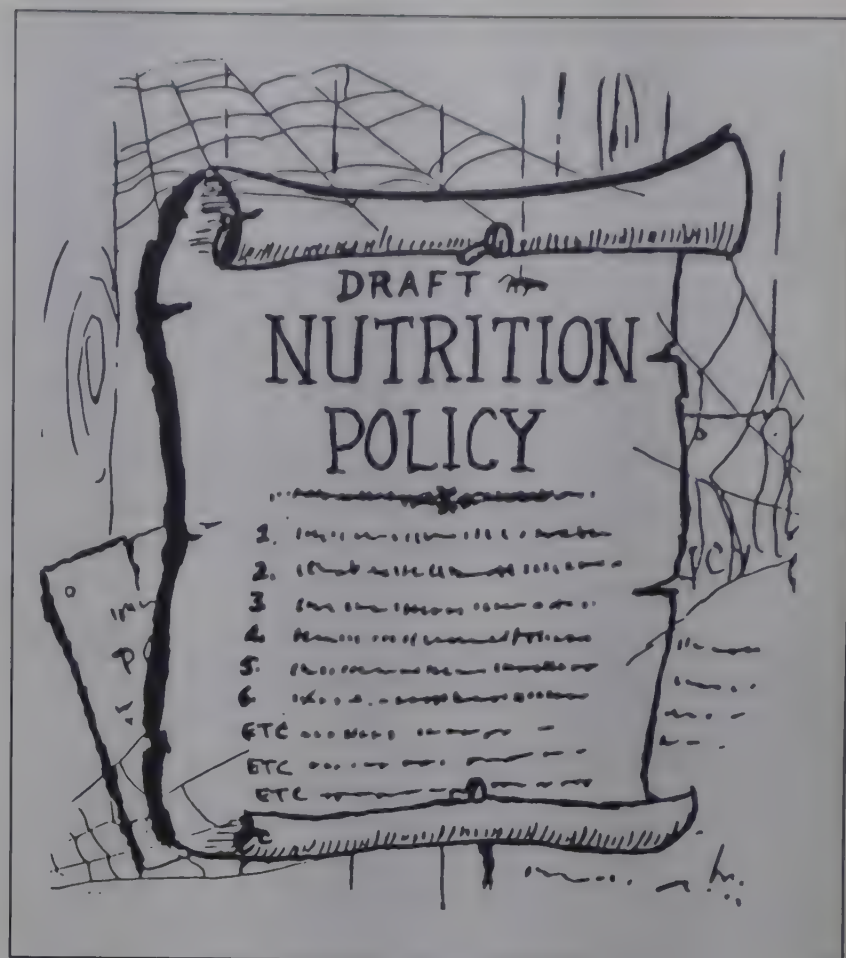
- Anti-poverty programmes and promotion of employment generation programmes (not only in urban and large industrial sectors but more specifically in small-scale/village sectors in rural and tribal areas) and removal of socio-economic disparities
- Strengthening primary health care (including the promotion of food supplies and proper nutrition education about health problems—the locally endemic diseases, their prevention, and control—provision of safe drinking water and basic sanitation, mother and child health and family welfare/planning facilities, immunisation against infectious diseases, treatment of common ailments/injuries and provision of essential drugs. In sum, ensuring access to basic health care even to population in remote rural and tribal areas, and involving the community in this task so that health care becomes a people's movement and does not remain a bureaucratic effort operated by the providers of health care)
- Eradication of major nutrition deficiency diseases, particularly protein energy malnutrition (PEM), anaemia, goitre and xerophthalmia (i.e., by vigorous and efficient application of specific technological measures such as iodisation of common salt, distribution of iron folate tablets and control of nutritional blindness by promoting the increased use of green leafy vegetables in the diets of children)

While planners and policy-makers have for long been aware of these basic elements of a meaningful nutrition policy, they have not tackled the problem adequately, perhaps because they lacked the resources to address these areas of concern.

It must, however, be pointed out that resource constraints alone cannot fully explain the tardy progress registered thus far in the field of health and nutrition. Health has generally received low priority in planning and within the health sector, nutrition has certainly not received adequate focus. The common assumption has been that if overall economic development is achieved, improved health and nutrition will automatically follow and the benefits of development will trickle down to the lower sections as well. Efforts at the promotion of overall economic growth have apparently triumphed over efforts at ensuring equity and social distributive justice in the planning process. In recent years there has fortunately been some rethinking in this regard and it is proposed that this will be further illuminated in the Eighth Five-Year Plan.

Such a nutrition policy alone is no guarantee against malnutrition and will remain a mere document unless it is implemented through appropriate sectoral strategies with specific objectives, plans for action, appropriate activities with time-bound targets, and an appropriate mechanism for its monitoring and evaluation.

While socialist principles have always underlined



planning strategy in India, in reality the planning process has not achieved much by way of addressing economic inequalities. These considerations highlight the fact that India's nutritional problems can be solved only by combating the basic socio-economic factors that underlie poverty and undernutrition. Thus the rational answer to the problem of undernutrition of course consists of attacking and eradicating poverty, a goal not likely to be achieved in the near future.

Broadly, two types of strategies should be considered to combat the problem of malnutrition in India. First, short-term strategies to strengthen the on-going nutrition and health programmes, and second, long-term strategies (multisectoral) aimed at the overall improvement of the nutrition status of the Indian population.

Short-Term Strategies

It needs to be emphasised that short-term goals in nutrition improvement can only be realised if a strong *health input* is available at all levels, alongwith access to basic services such as safe drinking water, improved sanitation, fertility control and literacy.

The short-term strategies include the following:

- Control of severe (Grade III and Grade IV) and moderate (Grade II) malnutrition
- Reduction in the incidence of low birth weight babies
- Reduction/prevention of specific deficiency disorders connected with low intake of vitamin A, iron and iodine

- Promotion of breast-feeding and early supplementation of foods to infants
- Correcting wrong attitudes and practices associated with the consumption and/or avoidance of various foods, particularly during pregnancy and nursing
- Improvement of nutritional status of preschool and school-going children (with special emphasis on the nutrition status of under-threes)
- Control of diarrhoeal diseases through the promotion of ORS
- Control of diseases like polio, measles and other communicable diseases through immunisation, and intestinal parasites/helminths through deworming and deinfestation

In order to achieve these objectives the following activities under two heads are important:

(a) Nutritional activities

(b) Non-nutritional activities

Nutritional Activities

- Supplementation of calories and proteins to the vulnerable groups with special emphasis on those belonging to low income groups. Most of the nutrition programmes in the country cater to the vulnerable groups, i.e., children between 0 to 6 years and women between 15 to 45 years. It is essential that girls in the age group 7 to 15 years are also covered under these programmes
- Supplementation of iron, folic acid, vitamin A, iodine and other micronutrients to all age groups
- Age-specific intervention programmes, which include:

i) *Pregnant women and nursing mothers:*

- Supplementary nutrition programme
- Supplementation of iron, folic acid, iodine and other micronutrients
- Immunisation (tetanus toxoid)
- Safe motherhood (control of toxæmia, anaemia, sepsis and abortion)

ii) *0 to 6 years with special emphasis to under-threes:*

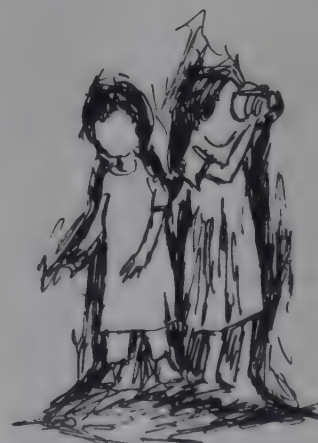
- Control of diarrhoea and respiratory infections
- Reduction of incidence of low birth weight
- Provision for immunisation
- Supplementary feeding and introduction of weaning food
- Promotion of breast-feeding
- Supplementation of vitamin A, iron and iodine

iii) *6 to 11 years:*

- Health education
- Personal hygiene
- Good food habits and physical fitness
- Midday meals
- Early detection of diseases/handicaps and interventions for their correction
- Medical check-up for dental, eye and skin problems and other communicable diseases

iv) *Adolescent girls:*

- Prevention of anaemia
- Raising age at marriage
- Non-formal education regarding health and nutritional needs of young girls, nursing mothers, infants, child care and home management



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Non-Nutritional Activities

- Nutrition education to children and women of all age groups according to their needs
- Establishing a link between water supply and sanitation and nutrition in the on-going major nutrition programmes for the provision of safe drinking/potable water and improvement of sanitary facilities
- Control of diarrhoeal diseases and emphasis on a deinfestation programme
- Enhancing the literacy rate and educating the people about the availability of nutrition and health facilities and their advantages
- Encouraging use of health delivery systems like PHCs and hospitals

Strategies to Strengthen the Services of Existing Nutrition Programmes

Strengthening of ICDS

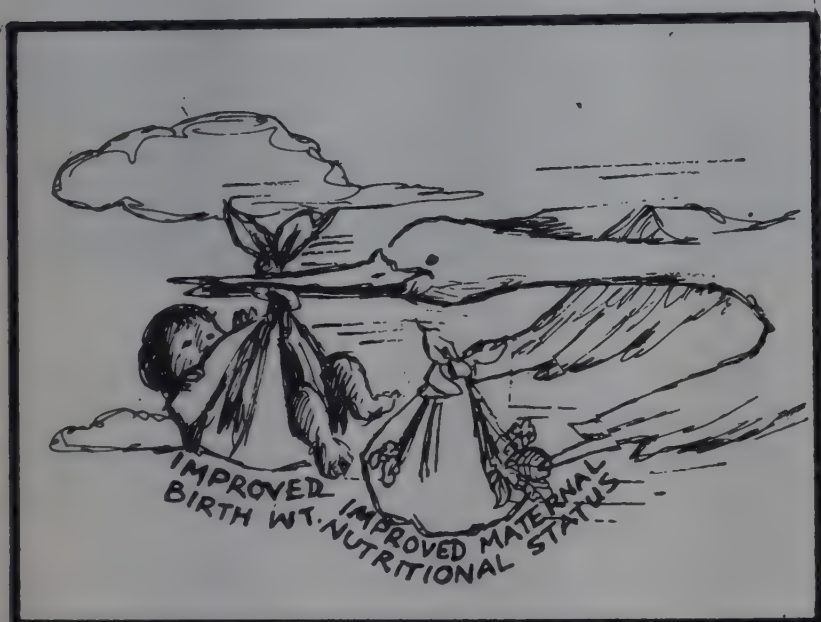
- The AWW's time needs to be better allocated and divided between the tasks she has to perform
- The time spent on selecting the target population needs to be reduced. It would be cost-effective and beneficial to select the poorest community and target the feeding to all children within this community as the majority would no doubt be malnourished. Time spent on weighing babies could also be reduced to once a year with the AWWs free to concentrate on the under-threes
- Children above the age of 3 years should be covered by the Midday Meal Programme in schools. This would enable the AWW to concentrate on the under-threes and pregnant women. More time can then be allotted to other equally important tasks and the regular and adequate distribution of iron/folic acid tablets and vitamin A, imparting education on relevant nutrition and health matters—one of the weakest links in the—ICDS, and preparation of suitable food supplements
- Adequate attention must be given to the selection and training of AWWs, using appropriate teaching methods and materials. Not only must the AWW be knowledgeable enough to share information with and impart health and nutrition education to women in the community in the correct perspective, but she must also be aware of and inculcate in them the spirit behind the concept of ICDS. Refresher/orientation courses should be conducted periodically to ensure the AWW's competence
- Dissemination of information about the programme is essential for the community to be aware of the nutrition and health services provided to them by the government in order to encourage them to avail of these services
- The uninterrupted delivery and supply of iron and vitamin A prophylaxis should receive proper attention—at least as much attention as supplementary food is given—by increasing the allocation of the AWW's time to the delivery of these nutrients. The AWW rather than the auxiliary nurse midwife (ANM) should be made responsible for this. The consumption of tablets rather than their mere distribution should be given more emphasis, and verification about whether the tablets are really consumed should be a priority area in the work agenda of the AWW
- The AWW should devote substantial time to the development of special foods for the mothers and the feasibility of their preparation at home
- Supervision of the AWW needs to be given more attention and the supervisor/AWW ratio should be increased to 1:10 in all the ICDS blocks
- Drinking water supply and sanitation must be made a component of ICDS along with nutrition services for the community
- All eligible children in a block covered by the ICDS programme should be ensured of all the components



of the services which are provided. Hence, selection procedures must be evaluated

Strengthening of NNAPP

- As the problem of nutritional anaemia is widespread amongst all segments of the population, all men, women and children should be covered under the NNAPP. This would have the far-reaching benefit of improving human work capacity and productivity (Gopaldas 1985; Kashyap and Gopaldas 1987; Seshadri and Malhotra 1984). The folic acid should be restricted for distribution to pregnant women alone. It has been shown (NSI 1973) that an additional 0.5 mg of folic acid with iron had some impact on improved birth weight



Existing studies have established the beneficial effect of deinfestating children prior to iron/vitamin A supplementation (Gopaldas et al. 1983). As helminthic infestations have been found to occur in 20 to 60 per cent of underprivileged children, it is recommended that deinfestation be included as part of the NNAPP. As vitamin A has been seen to affect haemoglobin (Hb) concentrations, it is recommended that a package of vitamin A, iron and anti-helminthics be provided twice a year to all children.

In view of the proposed increased coverage of the population under this programme, immediate steps need to be taken to increase the production of iron tablets.

In order to ensure the strengthening of the NNAPP, research is necessary to ensure the easy dissolution of iron tablets in the stomach. The rather strong coating on the present tablets appears to be a major hurdle in the total iron content being bio-available. Pilot studies should also be undertaken to assess the feasibility of including men, women and children in this programme,

as also to assess the actual consumption of these tablets by pregnant women.

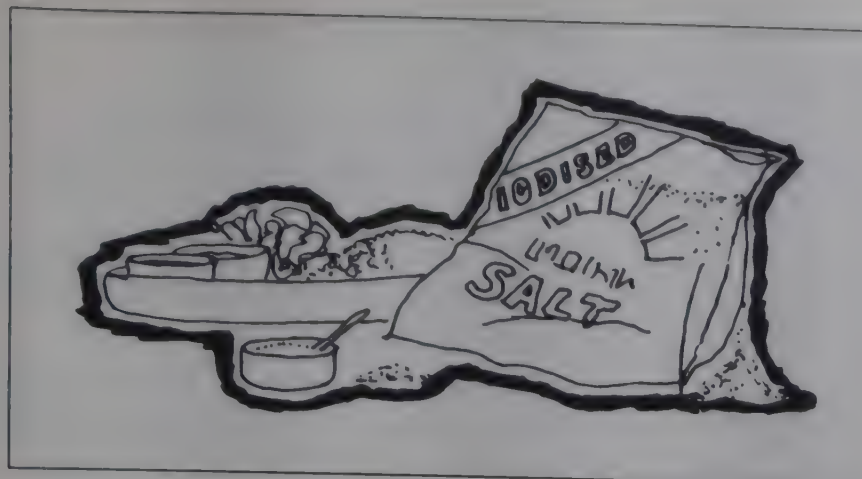
Vitamin A Prophylaxis Programme

- In a country like India where vitamin A deficiency is widespread among school-going children, it is recommended that these children be covered under the programme
- Apart from the primary health centres, sub-centres and the ICDS network, primary schools should be actively involved in the distribution of vitamin A not only to children at school, but to their younger siblings as well
- Vitamin A should be distributed to those children who show clinical signs of vitamin A deficiency as also to those with other problems such as measles, frequent or severe diarrhoea and acute lower respiratory infections
- The existing vitamin A syrup should be made more palatable. Two to three variants of flavour should be developed and tested
- Sturdy and accurate droppers to measure 2 ml of the syrup per beneficiary should be used on a trial basis
- The cost-effectiveness, shelf-life, biological stability, acceptability and impact of sugar-coated vitamin A acetate vs. non-sugar coated vitamin A acetate for schools in selected districts should be investigated
- The feasibility, cost and impact of the distribution of vitamin A four times a year opposed to twice a year to the school-going population should also be investigated

Strengthening of NGCP

- As the problem of goitre has assumed national dimensions with roughly 40 million people suffering from it, the production of iodised salt by all salt manufacturing companies should be encouraged. In fact, if companies along the coastline were encouraged to set up iodising plants, it would, to some extent, take care of the problem of transportation of iodised salt
- Iodised salt should be made available to poor families and communities through cooperatives and fair-price shops, grocers, health centres, schools, etc.
- There is an urgent need for effective monitoring of the iodisation process and distribution of iodised salt, and evaluation of its impact on the reduction of iodine deficiency disorders

Operational research in this area should include the following:



- An in-depth analysis of the consumption of salt by poor rural and tribal communities, especially in the goitre endemic regions. Although NNB studies have reported the salt consumption patterns of six states (NNMB 1984a), a much more detailed analysis is essential
- Salt sales must be monitored, and checks made of the iodine content of salt at the production site and in the retail stores (Burgi and Rutishauser 1986)
- The iodisation of water at water purification plants should also be carried out and its impact on iodine deficiency disorders assessed. The iodisation of water at the household level appears to be promising and should be investigated

Midday Meal Programme

- Schools must become the major channel for the promotion of health care to school children. An efficient school health service should be organised which would ensure regular distribution of vitamin A, iron and anti-helminthics to large groups of school children who are easily accessible at school
- These school children should in turn transmit these preventive health inputs to their own families and other families in the community
- Programmes of community health/nutrition education (particularly information on nutrition programmes) should be undertaken by the school for the children and the community
- The teaching staff should be adequately trained to undertake such a programme
- The impact of health services on the health and nutritional status of children should be assessed
- Pilot studies should be undertaken in selected schools to evaluate the dissemination of information from the teacher to the child, and from the child to the parents
- Low-cost foods made from locally available resources and the feasibility of their preparation at the village level should be explored

Long-Term Strategies

Although the nutrition status of a population is undoubtedly a major determinant of the nation's health status, nutrition status itself is largely determined by various socio-economic factors. For any long-term sustainable improvement in the nation's nutrition status it is imperative that nutritional considerations find the proper place in developmental plans in such sectors as agriculture, food and civil supplies, health and family welfare, human resource development (education, women and child development and social welfare), rural and tribal development, etc.

Therefore, a concerted national effort to tackle the problems of food production, food distribution, population, employment, income generation and distribution, education, public health and drinking water, environmental sanitation and hygiene is essential.

Agriculture and Food Production

- Although India's record with regard to the augmentation of rice and wheat production has been impressive, there is considerable scope for the augmentation of other foodgrains as well. Coarse grains, for instance, have been given little attention and their production must be enhanced
- The production of all foodgrains should be stepped up to meet the food needs of a growing population as well as build a buffer stock. For this, improved techniques should be increasingly applied, high yield varieties of food crops developed and extensively cultivated, adequate extension services made available to farmers, proper arrangements made for the transportation of food to all parts of the country (particularly remote areas where communication is poorly developed), wastage of food in transit and storage be reduced to the minimum, available food conserved and effectively utilised and adequate buffer stocks maintained to meet natural calamities and emergencies such as droughts, floods, cyclones, tornadoes, earthquakes and outbreaks of epidemics
- The decline in the production of oil seeds and pulses has had severe nutritional repercussions and every effort should be made to redress this
- The special merit of green leafy vegetables as a low-cost source of vitamins, specially vitamin A and minerals, requires to be emphasised
- Fruits like papaya, pomegranate, custard apple, sapota, and fig, which grow easily in arid regions, should be produced locally for consumption
- Kitchen gardens should be encouraged as they can play an important role in supplementing the nutritional needs of individuals and families



- The imbalance that arises in family nutrition as a result of growing cash crops such as soyabean or potatoes, meant almost exclusively for commercial consumption should be corrected through an appropriate approach
- Post-harvest technology should be improved. This involves proper storage without infestation and loss of nutrients, reduction of pesticide residues, and storage devices appropriate to local conditions
- Indigenous and low-cost food storage practices

should be given due priority especially at the household level

- Attractive incentives to farmers should include remunerative price fixation, timely loans and insurance of crops
- The supply of such agricultural inputs like better seeds, fertilisers, irrigation facilities and rural electricity should be given emphasis
- Efforts should be made to ensure that food crops contain only the permissible level of pesticides and insecticides to avoid food toxicity
- Efforts should also be made to ensure that recent advances in biotechnology and genetic engineering are brought into use in the promotion of better varieties of food crops
- Animal husbandry and dairying have assumed great significance due to the increased demand for eggs, meat, chicken and milk in view of their role in improving nutritional status. Research institutions like the ICAR can help improve the breed of chickens and other animals reared for their flesh, as also milch cattle. The easy availability of animal health facilities for farmers would help in preventing the loss of livestock. A system of surveillance must be developed to guard against the spread of epidemic among farm animals and poultry. Proper arrangements for slaughtering animals, processing of meats and procurement of adequate fodder have to be made as supporting activities for animal husbandry and dairy development

Public Distribution System (PDS)

- The PDS should be modified to ensure the equitable distribution of food to the poor, as also the equitable distribution of food between regions

Box 8

NUTRITION GARDENS

Thane district. A predominantly tribal district. Tribals who consume mainly cereals and seldom any fruits and vegetables. The result? Widespread malnutrition. But there is a beacon of hope in the 'nutrition gardens', a concept developed by the Institute of Rural Reconstruction, Bardi, which promises to combat the problem of malnutrition among the tribals and that too, through their own efforts.

Both men and women are trained in the production of fruits and vegetables and ways to incorporate them in their daily diet, thereby maximising their nutritional intake. The thrust is on local species and local skills. Thane is a drought-prone region and the focus is on drought resistant fruits and vegetables like mango, custard apple, *ber*, drumstick and agasta which have a deep root system and extract moisture from deep humid

layers of soil during the dry months. Besides, they are extremely rich in vitamins and minerals.

The tribal farmers who have small irrigation wells are encouraged to set up small nurseries to supply seeds and plants at the onset of monsoons. To enhance local varieties of mango at a low cost, the tribals graft seedlings of finger thickness with improved varieties like Alphonso, Kesar and Pyari. Local *ber* seedlings are budded with improved varieties like Umram, Gola and Mehroon. Introduction of custard apple in the area has had an additional bonus—it is not browsed by animals.

Initially introduced in five villages—Bardi, Gholvad, Zai, Borigaon and Aswali—the concept of 'nutrition gardens' offers the prospect of a healthier life not only to the tribals of Thane but to millions of others as well.

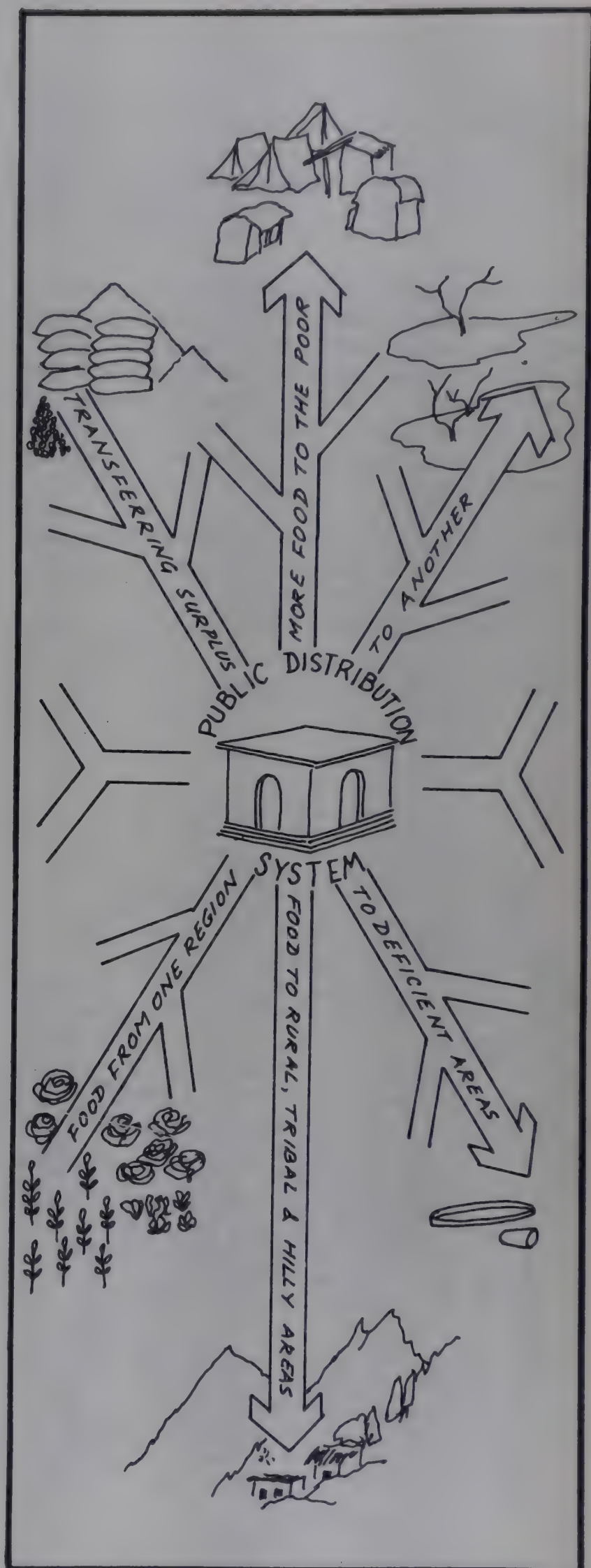
- PDS should be expanded to cover more areas than it does, especially in rural and remote tribal hill areas
- The adoption of a dual pricing policy may be considered for items distributed by the PDS, based on income (rich/poor), family size (large/small) or location (urban/rural, remote rural/tribal)
- Besides rice and wheat, other food items like coarse grains, millet, maize and pulses could also be included in appropriate areas
- Pulses should also be supplied through the PDS
- A system of monitoring the PDS should be devised
- In areas prone to natural calamities, a buffer stock of food should be maintained

However, increasing food production alone will not alleviate the problem. India is a land of diversity in terms of production as well. While some areas have a surplus of foodgrains, others are deficient. An efficient system of transferring the surplus to deficient areas can help overcome some of the problems of shortage. Further, India operates a consumer food subsidy policy which not only results in a substantial amount being spent on consumer subsidies, but the rural poor are the least likely to benefit from these subsidies as they produce their own food.

The conflict between consumer and producer price policy could be resolved by adopting a dual pricing policy. This could be a subsidised consumer food policy in conjunction with a guaranteed support price for the farmers. This has worked well in Pakistan where the government purchases wheat from farmers and sells it to consumers at a subsidised price. The difference between the purchase price and the selling price is then absorbed by the government.

Food pricing and food distribution policies in India has still not enabled sizeable segments of the population to gain easy access to foods that would meet their basic nutritional requirements. Although subsidised foodgrains are available through fair-price shops, this does not reach many remote rural and tribal areas and is inadequate with respect to both the quality and quantity of foodgrains available to the low income groups. These deficiencies do not necessarily reflect inadequate overall availability of food but they do reflect the fact that a vast proportion of the population has income levels too low to permit them access to foods to meet their basic essential requirements.

Ever since the public distribution of foodgrains through subsidies was begun, the practical difficulty of identifying target groups proved a major hurdle. The government usually identifies virtually the entire population and this not only affects the efficiency of the strategy but results in many better-off households drawing its benefits.



Education

The concern about education is central to the concept of development as education is not only a basic need and human right but also a means of sustaining development. While significant progress has been made in increasing the literacy rate in India, a lot needs to be done in view of the size of our population and widespread adult illiteracy today.

It is unfortunate that female literacy is distressingly low and the rate of female drop-outs alarmingly high. Unfortunate because studies have shown the positive impact of maternal education on infant and child mortality as well as nutritional status. It has also been shown that in families where mothers are literate, optimum use is made of the available health and nutrition services.

- A massive campaign or movement with full political support and the people's commitment should be launched to eradicate illiteracy
- University and high school students, and retired teachers should be involved in adult literacy and functional education programmes



- NGOs, including the youth clubs, should also be encouraged to take up adult and functional literacy programmes
- Innovative ways of promoting literacy outside the school system among adolescent girls in the age group 10 to 14 years should also be devised (Gopalan 1984, 1987). This system of education should be more practical and should prepare them for better motherhood, help equip them to face the demands of childrearing, and concentrate on promotion of family health and nutrition
- Nutrition-health-population education should be included in the curriculums of primary schools. Developing awareness and understanding among children in schools will ensure the transfer of information from these children to their parents, guardians and siblings

Rural Development and Poverty Alleviation

Rural development and anti-poverty programmes addressed to the rural population can make a significant contribution to nutritional upliftment if they are targeted to the weakest sections and tailored to suit the special needs of the region, district, block or village. As pointed out earlier, the socio-economically deprived are the most malnourished. An important means of combating this is to raise the socio-economic status of those at the bottom rungs. Although rural development programmes and, more recently, poverty alleviation programmes have been given considerable emphasis in the Five-Year Plans, there is evidence that they have not made a significant dent in the poverty profile of our country.

Most of these programmes have no in-built nutritional component and it is important that developmental programmes include not merely an income generation component but a well-designed, location-specific, need-based nutrition component as well. A start could be made by examining the existing rural/tribal development and poverty alleviation programmes and identifying areas where the incorporation of a nutritional component could be most fruitful. One view holds that the increased income through such anti-poverty programmes benefits only males and is spent not on improving the nutritional status of the family but on alcohol and other conspicuous consumption. The second view is that increased income among women too is no guarantee of the improved nutrition status of the family. Reports indicate that by allowing more time on income generation, women move away from child care which leads to a deterioration in the nutrition status of the children.

Although it is important to ensure minimum wages for rural agricultural labour, they are virtually without work in the pre-harvest season which makes the

minimum wages prescription redundant. Schemes like the National Rural Employment Programme and the Rural Landless Employment Guarantee Programme have been in existence for some years but their impact is yet to be felt. Therefore, special innovative programmes should be targeted to this section to help them tide over the lean season.

Although it is difficult to assess the direct impact of poverty alleviation programmes on health and nutrition, they do indirectly combat malnutrition.

- Anti-poverty schemes like Integrated Rural Development Programme (IRDP) and Economic Rehabilitation of Rural Poor (ERRP), and employment generation schemes like National Rural Employment Guarantee Programme (NREP) and Jawahar Rozgar Yojana (JRY) must be strengthened to increase the people's purchasing power
- Programmes like IRDP which are geared towards poverty alleviation and income generation should be evaluated with special reference to their impact on health and nutrition status of the population. To achieve this, food-for-work programmes need to be enhanced
- Income generation and employment schemes for women (Development of Women and Children in Rural Areas—DWCRA) must be strengthened
- The rural youth and women must be made aware of the existing programmes on rural development,

more specifically, self-employment schemes, loans for income generating projects, etc. Local bodies like youth clubs, *mahila mandals* and voluntary agencies could be involved in this effort

Safe Drinking Water and Sanitation

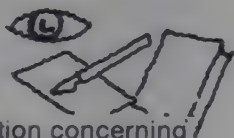
Access to safe drinking water and sanitation are critical for improving the health of any community (Mitra 1980). Nearly 60 per cent of the total population in India has no access to safe drinking water and more than 70 per cent of the people in rural areas are forced to use unsafe water sources (Ministry of Works and Housing 1983).

Along with safe drinking water, high priority should also be given to improvement of the environment and sewage system. Only 6.4 per cent of the population in 1985 had access to sanitation facilities. The association between poor sanitation and hygiene and worm infestations and other infections is well-documented.

- The population covered by an adequate supply of safe drinking water should be increased
- Ground-water should be tapped with as many distribution points as possible. This would reduce the chances of epidemics and hence ensure good health and nutrition

E

Education concerning prevailing health problems and the methods of preventing and controlling them.

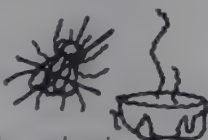


FIVE BASIC PRINCIPLES OF PRIMARY HEALTH CARE

1. Equitable Distribution
2. Community Involvement
3. Focus on Prevention
4. Appropriate Technology
5. Multisectoral Approach

L

Locally endemic disease control and prevention



EIGHT ESSENTIAL ELEMENTS OF PRIMARY HEALTH CARE

E

Expanded programme on Immunization (now UIP — Universal Immunization Programme against 6 major infectious diseases).



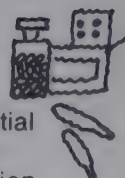
M

Maternal and Child health care including family welfare/ planning.



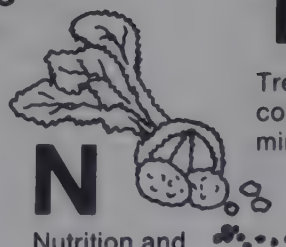
E

Essential drugs provision



N

Nutrition and Food supply



T

Treatment of common diseases/ minor ailments.



S

Safe water supply and basic sanitation.



HEALTH SERVICE PACKAGES SHOULD BE ...



- Underground water should be tapped through simple covered wells with hand pumps, and relatively inexpensive tubewells
- Well water should be protected at all times
- Cheap and simple methods of purifying water at the community and household levels should be identified

Health Care Delivery

India is committed to the goal of 'Health for All by 2000 AD' and to achieve this, the strategy of 'Primary Health Care' has been adopted. A vast health infrastructure has been developed to ensure the delivery of health services down to the grassroots level.

While considerable emphasis has been given to some components of primary health care, like growth monitoring and oral rehydration, immunisation, promotion of breast-feeding and nutrition education have been ignored and are by no means less important. To be effective, the primary health care strategy should include an integrated package of health and nutrition service and take into account all operations at the community level designed to improve the health and nutritional status of the communities, irrespective of whether or not these programmes are actually within the ambit of the health sector.

Two crucial areas to tackle are:

- Eradication of communicable diseases through immunisation and intestinal parasites and helminths through deworming
- The universal immunisation programme should be further strengthened to reach the remotest areas of the country

Participation and Nutrition Education

Improvement in nutrition status is brought about not merely by the delivery of services (health and nutrition inputs) by providers of health care or even through the enhancement of incomes, important as these are. Improved nutrition involves better habits of living, personal hygiene, dietary practices, and childrearing and child care practices. This does not necessarily mean that drastic changes have to be brought about in a community's traditions and socio-cultural traits. Often professional nutrition educators have placed the blame for low nutritional status at the doors of the victims themselves, pointing to their traditions as hindrances to proper education.

However, the type of nutrition education envisaged here is far removed from occasional lectures and

demonstrations and concentrates instead on the community's participation and involvement. No programme geared towards the improvement of health and nutrition of communities can succeed unless these communities themselves fully understand the need for such a programme, demand it, participate in it, and cooperate in ensuring its success.

Nutrition messages tend to focus on inculcating sound dietary practices in children and pregnant and lactating women. What is more important is to educate the community about the nutrition and health facilities that are available to them and how these are beneficial to them.

Television, radio, government departments and NGOs, and local agencies like youth clubs and *mahila mandals* should all be entrusted with the responsibility of dissemination of nutrition messages, particularly information on the nutrition programmes and their benefits. All these bodies should ensure the active participation of the local people when disseminating information in order for this to become a people's movement.








In order to achieve both the short-term and long-term strategies, the following factors should be taken into account:

- The role of NGOs in implementing nutrition programmes should be strengthened. NGOs can be involved more actively in eliciting community participation in nutrition education, in rural development and income generation schemes—schemes aimed at the all-round development of the underprivileged
- In both the health and non-health sectors, training should be strengthened in order to enhance awareness of existing nutrition programmes
- There is an urgent need for in-depth interdisciplinary research on the problem of malnutrition in India, involving sociologists, psychologists, agricultural scientists and those involved in public health and social and preventive medicine. This alone will provide a holistic view of the problem. Further, such research should concentrate much more on the ways to mitigate the problem and on what services can be organised to do so, rather than on the problem *per se*
- Information, Education and Communication (IEC) should be an integral part of all nutrition and related programmes, including education, income and employment generation, health, sanitation and agriculture
- Links must be established between different departments working in the field of health and nutrition and allied activities. For instance, intersectoral linkages between such departments as Human Resource Development (Education, Women and Child Development, and Social Welfare), Health and Family Welfare, Food and Civil Supplies, Agriculture, Rural and Tribal Development are essential for there to be

any improvement in the nutrition status of our population. Further links between government and non-government departments are also important. Coordination at various levels between the functionaries would go a long way towards reinforcing the efficiency of nutrition programmes

- Monitoring and evaluation of all nutrition and related programmes should be a continuous process. The following sets of indicators could help in forming a uniform reference standard to assess changes in nutritional status

Seven supporting activities for Primary Health Care

S		Sectoral collaboration (intra and inter)
U		Utilisation of appropriate technology for health
P		Participation from community
P		Provision of resources
O		Organisation and management development
R		Research (Action/Operation)
T		Training and Manpower development

(b) Nutritional Indicators

- Height and weight of children under 6 years
- Height and weight of children entering primary school
- Haemoglobin levels of children entering/leaving school

Malnutrition is a widespread problem that has to be tackled by transferring income and providing employment. Direct assistance in the form of supplementary feeding cannot be the permanent answer to hunger and poverty; it can only help temporarily mitigate some aspects of the problem. Perhaps it might even distract us from our wider goal. As A. Mukhopadhyay (1988) rightly pointed out: 'Success in combating the nutritional problems of a large percentage of citizens will not depend so much on covering the children of the whole country through supplementary nutritional programmes but by firm political will to ensure that every family has enough work and just wages to earn their living with dignity and self-respect.' Therefore, large-scale supplementary feeding programmes should be given serious thought, should be objectively and independently monitored and evaluated so that the defects in implementation can be remedied.

Interestingly, Ashok Mitra, an eminent economist, compares the human body with a leaking bucket: 'The human frame can be likened to a leaking nutrition bucket and in poor societies nutrition is sometimes drained away faster from the human body than it is possible to pour. The holes in the bucket are not only inadequate food but diseases like lack of employment, education and information, lack of immunisation, weaning diarrhoea, infections, intestinal and parasitic diseases, lack of preventive health care, etc. Protected water supply, wherever it has been possible in poor countries, plus the elimination of malaria, not to speak of adequate distribution systems of food, have accounted for more improved nutrition among poor people than the best recipes of nutritionists' (1980).

It follows that prevention of wastage through communicable and parasitic diseases is usually far more economical and enduring than nutrition intervention programmes addressed to a specific target group based on age, sex, social or economic criteria. This is particularly true of India, because of such disparities in incomes, it is difficult to identify target groups. Often, the political, and economic distances between groups result in services targeted to one group being delivered to another—usually favouring the privileged.

Therefore, any programme geared towards sustainable nutritional improvement should concentrate on prevention of wastage and leakage of nutrition rather than on nutrition programmes *per se*, as the former enjoys a greater chance of reaching the target.

(a) Social Indicators

- Income and food availability in the family
- Literacy of adult men and women (especially women)
- Number of children in primary school (especially girls)
- Availability of safe drinking water
- Sanitation facilities
- Accessibility/availability of primary health care
- Family size (especially number of children under 6 years and adolescents)

Nutrition programmes, thus, must offer a package of services geared towards socio-economic development which should include:

- Employment generation—to help an individual produce and eat
- Education (both primary and vocational)—to enable one to take advantage of the developmental efforts of the government and NGOs
- Strengthening local community organisations (especially youth and women's organisations)
- Enhancing food production, improving distribution and pricing policies, and disseminating information on nutrition

- Adequate supply of potable water, environmental sanitation and hygiene
- Eradication of communicable diseases

In essence, nutrition is an area that requires the concerted efforts of planners, economists, sociologists, anthropologists, psychologists, demographers, agricultural scientists, communication specialists, and all agencies concerned with food production, transportation, storage and distribution.

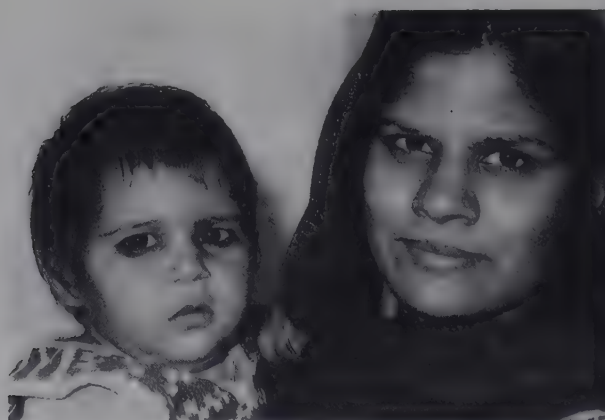
Nutrition can no longer be viewed narrowly as a problem of nutritionists alone. Nor can it be seen only as the provision of carbohydrates, calories, proteins and micronutrients to the human body. Nutrition must be seen as synonymous with overall socio-economic development.



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Health Systems and Services

Introduction

According to the 1991 Census, one-sixth of the global population lives in India. Therefore, the state of health of the people of India has a significant bearing on the state of the world's health.

India's health status is remarkable for its myriad contradictions. While the state of health in some states compares favourably with the best of developing countries, the majority are bracketed with the worst in the world. Conceptually, health planning in India has been based on a sound foundation and has a fine historical background dating back to the 5th century BC. The primary health infrastructure in India is as impressive as in any other developing country. This is backed by incredible local health traditions which permeate every corner of the country. This chapter examines some of these contradictions and discusses future possibilities and priorities.

Backdrop

Historically speaking, there is no doubt about the richness of Indian health traditions. Even a cursory look at the Mohenjodaro and Harappan ruins, particularly the detailed and impressive manner in which these settle-

ments took care of sanitation and environment, will suffice. At the theoretical level, *Charaka*, the *Sushruta Samhita* and other ancient texts are glorious examples of holistic thinking in the area of health.

There also exist several examples of communities all over the country which have built up their own health traditions depending on the local epidemiology, ecology and environment. A part of this tradition still exists in the more remote areas, as discussed in another chapter in this volume.

During the colonial period, state-sponsored health services were initiated, essentially to meet the needs of expatriate colonisers. This is evident from the fact that health and hygiene measures were concentrated mostly in the cantonments and district headquarters. This trend continued until it was realised that the health of the working population was closely linked with the productivity of the nation and its capacity to generate revenue. Thereafter came the introduction of minimum immunisation services against small pox and basic curative services in urban areas. This selective health intervention during the colonial period resulted in the foundation of Western medicine in India. This included institutes to train health personnel, basic research in tropical diseases and a health service for the country. But never, during

these three centuries, was any effort made to encourage or integrate the local health traditions. On the contrary, these indigenous systems and folk practices were looked upon with disdain. Even in the vaccination programme against small pox, it was decided that the existing traditional practices had to be supplanted with the Western system for its success. As far as vaccination was concerned, medical monopoly and not cultural pluralism was their desired goal.

This trend caused incalculable damage to the health tradition of India, leading to the gradual decline of indigenous systems. This was also the beginning of elitism in health services in India. The people's essentially holistic outlook on health was eroded and gradually replaced by the drugs-disease-doctor orientation. Colonial exploitation also led to severe environmental destruction, which resulted in several new diseases which were directly linked to the disruption of the ecological balance.

By the time India won Independence, socio-political and economic degeneration had reached a level where hunger and malnutrition were universal, half the children died before the age of 5, primary health care was non-existent and nine-tenths of the population was illiterate. According to the National Planning Commission's Sub-committee on Health, the distribution of mortality according to age in 1942 was as follows:

Under 1 year	24.3%
1-5 years	18.7%
5-10 years	5.5%
Total under 10 years	48.5%

Out of every 1,000 children born, 162 died before they were 1 year old. For every 1,000 live births, twenty mothers lost their lives. Malaria accounted for 100 million cases every year, out of which 1 million died. The ratio of health personnel to population shown below is evidence of the inadequacy of services:

1 doctor	for	6,000 people
1 nurse	for	4,300 people
1 midwife	for	6,000 people

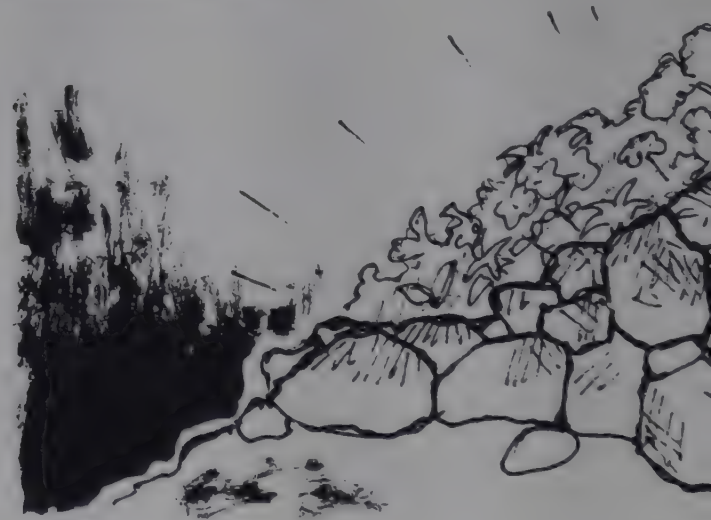
Developments after Independence

Given this sombre backdrop, evolving a health plan for Independent India was a daunting task. A Committee, headed by Colonel Sokhey and comprised of distinguished medical professionals like Dr B.C. Roy, Dr G.V. Deshmukh and Dr J.C. Roy was established. As most of them had been closely involved with India's freedom struggle, they had a far-reaching, people-oriented vision of health services in India. The recommendations of this Committee, as well as the Health Survey and Develop-

ment Committee (referred to as the Bhore Committee) set up by the colonial authorities in 1946, formed the basis of the health policy of Independent India. Without going into the detailed recommendations of this Committee, it will suffice to say that they set the foundation of comprehensive rural health services through the concept of primary health care. They also conceptualised a broad development approach to improve the health status of the people, which included a clear plan to combat communicable diseases, and laid the foundation of the population programme. They also envisaged the close involvement of those trained in non-Western systems of medicine to develop health services.

Built on this foundation, a detailed plan to set up an infrastructure of primary health care throughout the country was evolved and has been implemented for the last four and a half decades. Some of the landmarks of this journey include:

- Institution of the process of establishing primary health centres (PHCs) in 1952. PHCs are regarded as the mainstay of integrated health services
- Integration of the system of medicine in primary health care in the early 1970s
- Clear-cut emphasis on population control from the mid-1960s
- Launching of sanitation and drinking water supply programmes from the Fifth Five-Year Plan
- Launching of the Integrated Child Development Services (ICDS) programme for pregnant and lactating mothers and preschool children in 1975
- Launching a package of minimum needs programmes from the early 1980s
- Last, but not the least, the launching of the multipurpose workers scheme in 1971 and the community health guide scheme in 1977



The Situation Today

In spite of these significant developments and impressive growth in the infrastructure and personnel for health care, which are evident from Tables 1 and 2, the health scenario in the country remains dismal.

Table 1
Health Care Facilities

Year	Hospitals		Dispensaries		Beds#		PHCs	Subcentres	Drugs availability (Rs per capita per year)
	Urban	Rural	Urban	Rural	Urban	Rural			
1951	NA	NA	1358	5229	*117000	-	0	-	0.55
1956	2059	1315	1154	6292	116952	35936	725	-	1.35
1961	2203	1131	1917	7623	178204	51430	2565	-	1.93
1966	2668	1314	2056	8175	234611	60919	4631	-	3.55
1971	*3862	-	*12180	-	*348655	-	5112	28489	5.47
1976	*4465	-	*11695	11590	*448866	-	5328	34088	6.92
1981	4984	1821	5164	13761	417781	86757	5740	51405	20.87
1986	6131	1633	12110	-	489970	104777	8496	90317	27.79

Source: FRCH.

Includes both hospital and dispensary beds.

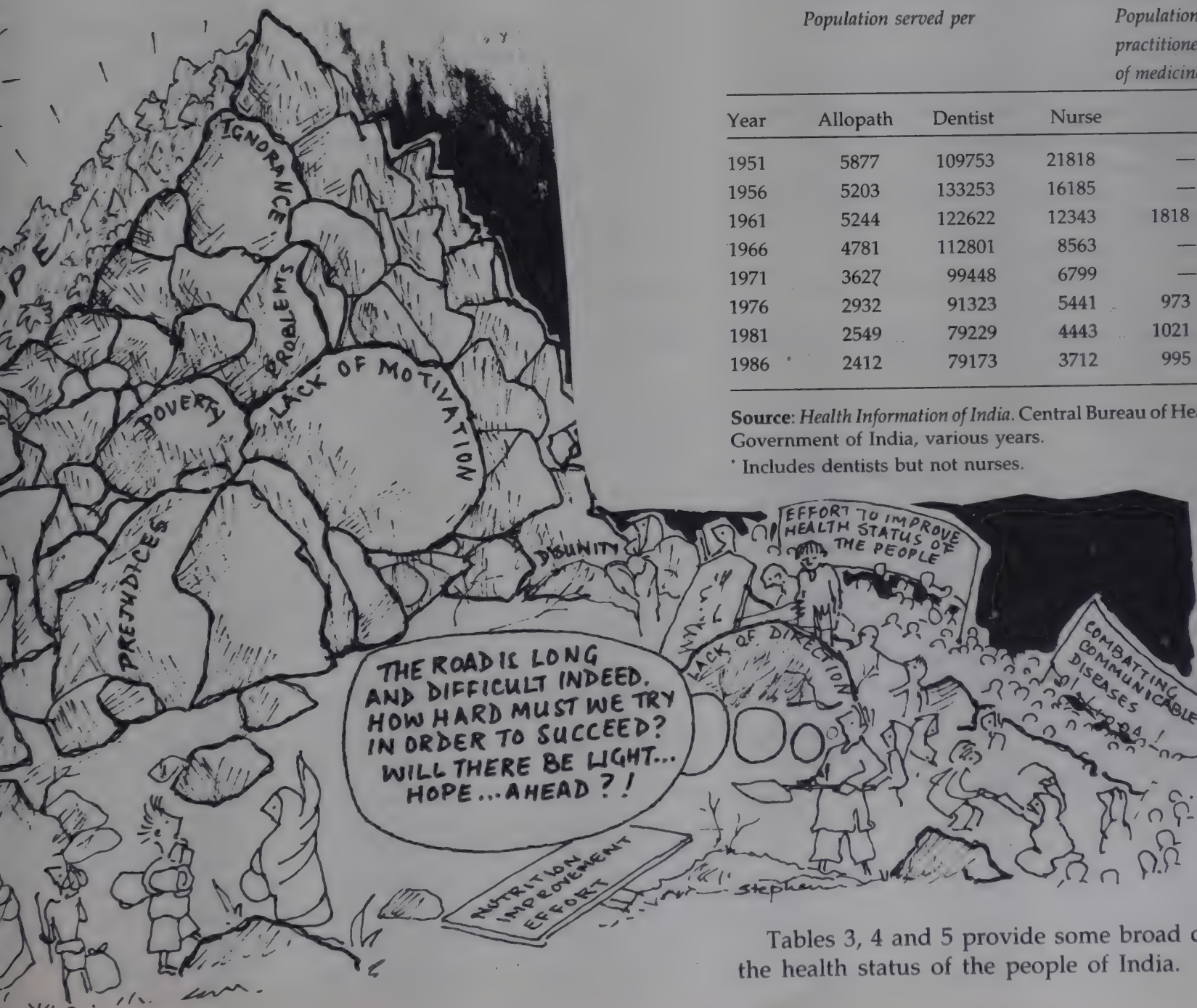
* No separate urban and rural break-up is available for 1951, 1971, and 1976 figures.

Table 2
Medical Personnel and Population Ratio

Year	Population served per			Population per registered practitioner of all systems of medicine*
	Allopath	Dentist	Nurse	
1951	5877	109753	21818	—
1956	5203	133253	16185	—
1961	5244	122622	12343	1818
1966	4781	112801	8563	—
1971	3627	99448	6799	—
1976	2932	91323	5441	973
1981	2549	79229	4443	1021
1986	2412	79173	3712	995

Source: Health Information of India. Central Bureau of Health Intelligence. Government of India, various years.

* Includes dentists but not nurses.



Tables 3, 4 and 5 provide some broad dimensions of the health status of the people of India.

Table 3
Population Structure and Standard of Life Indicators

Population														Population Structure					Standard of Life Indicators				
YEAR	Total	Rural (millions)	Urban (millions)	Sex ratio	Longevity		'IMR	Daily	Per capita GNP in Rs (current prices)	Index of	Rs per capita		Milk availability (kg per capita per year)										
				females	at birth	1000	foodgrain	per capita		per capita	pvt final												
				per	(in years)	live	availability	GNP in Rs		income	consumption expenditue												
				1000	males	Male	Female	births		(gm per capita)	at 1970-71 (prices)	current prices		1970-71 prices									
1	2	3	4	5	6	7	8	9	10	11	12	13											
1951	361.09	298.66	62.43	946	32.45	31.66	146	396	276.55	100.40	-	425.52	46.8										
1956	400.16	329.66	70.50	-	-	-	137	429	294.85	112.60	-	457.82	47.8										
1961	439.23	360.31	78.92	941	41.89	40.55	129	472	361.52	121.00	346.67	491.68	45.4										
1966	493.39	400.09	93.30	-	-	-	129	408	555.99	118.30	441.17	494.17	38.9										
1971	548.16	439.04	109.12	930	46.40	44.70	129	471	785.83	134.50	585.65	560.22	36.5										
1976	617.25	483.87	133.38	-	-	-	129	453	1295.50	139.90	883.48	542.36	-										
1981	685.18	525.45	159.73	933	55.60	56.40	110	457	2327.27	154.40	1509.95	619.55	45.7										
1986	769.96	574.40	195.56	-	58.10	59.10	96	475	3784.19	-	-	-	56.2										

Sources:**Population Structure**Cols. 1-3 *Statistics Abstract: CSO, GOI, 1972, 1975, 1984, 1986.*Col. 4 Registrar General of India as cited in *Health Information of India, 1988, CBH, GOI (Table 1.1).***Standard of Life Indicators**Cols. 5-6 Registrar General of India as cited in *Health Information of India, 1988.*

Col. 7 IMR = Infant Mortality Rate.

*Basic Statistics Relating to the Indian Economy, CME, August 1984.**Sample Registration System (SRS), respective years. Regis-*

Col. 8

Col.9

Col.10

Cols.11-12

Col.13

Note:trar General of India, GOI, 1988, as cited in *Health Information of India, 1988, CBHI.**Basic Statistics Relating to the Indian Economy, vol. I. All India. August 1988, CME (Table 3.10).*Per capita GNP has been calculated using *Basic Statistics, CMIE, op. cit. (Table 8.12).*

Ibid. (Table 8.21).

*National Accounts Statistics 1970-71—1984-85, CSO, January 1987, GOI, pp. 156-57.**Standard of Living of the Indian People, February 1988, CMIE.*

1 per 1,000 live births.

Table 4
Birth and Death Statistics

YEAR	Crude birth (rate per 1000 pop.)	Crude death (rate per 1000 pop.)	TFR births per woman	Still birth rate (per 1000 live births)	Neonatal mortality	% distribution of sample births by type of medical attention at birth					% distribution of sample deaths by type of medical attention at birth		
	1	2	3	4	5	6	7	8	9	10	11	12	13
1951	39.9	27.4	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
1956	41.7	22.8	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
1961	41.2	19.0	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
1966	39.1	16.9	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
1971	36.9	14.9	5.2	17.5	75.2	13.7	14.5	47.1	24.1	9.3	N.A.	N.A.	N.A.
1976	34.5	15.0	4.7	17.5	77.0	17.8	15.3	46.6	20.3	9.0	27.3	25.3	38.1
1981	33.9	12.5	4.5	10.6	69.9	17.7	18.5	45.4	18.4	9.2	29.3	19.0	42.7
1986	32.6	11.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	29.2	22.4	39.2

Table 5

Selected Indicators for all States

Selected Health and Social Indicators in the Major Indian States: Total Population (millions in 1991), PCY (rupees in current prices 1989-90), Proportion below Poverty Line (per cent in 1987-88), Literacy (ages below 7 years in 1991), Birth and Death Rates (per 1,000 in 1989), Total Fertility Rate (births per woman in 1987-88), Infant Mortality Rate (per 1,000 live births in 1991), and Life Expectancy (years in 1990), in India.

State	Socio-economic					Demographic			
	Popu- lation	PCY	Poverty	Literacy	Birth	TFR	Deaths	IMR	e
Andhra-									
Pradesh	66.3	2.3	31.6	45.1	25.9	3.7	9.5	81	58
Assam	22.3	2.2	22.6	53.4	29.4	4.5	10.4	91	52
Bihar	86.3	1.8	40.7	38.5	34.3	5.4	12.1	91	53
Gujarat	41.2	3.2	11.7	60.9	28.7	3.9	9.7	86	58
Haryana	16.3	3.9	11.7	55.3	35.2	4.6	8.5	82	60
Himachal									
Pradesh	5.1	2.9	9.1	60.5	27.7	3.6	8.7	75	60
Kashmir	7.7	3.3	13.3	n.a.	30.1	4.5	7.6	66	60
Karn-									
ataka	44.8	2.5	31.9	56.0	28.0	3.6	8.8	80	60
Kerala	29.0	2.4	16.9	90.6	20.3	2.4	6.1	21	68
Madhya									
Pradesh	66.1	2.0	36.4	43.5	35.5	4.6	12.9	117	52
Mahara-									
shtra	78.7	3.8	29.1	63.1	28.5	3.5	8.0	59	61
Orissa	31.5	1.9	37.9	48.6	30.5	3.8	12.7	121	53
Punjab	20.2	4.7	7.0	57.1	28.3	3.5	8.2	64	63
Raja-									
sthan	43.9	2.2	23.6	38.8	34.1	5.5	10.7	96	54
Tamil									
Nadu	55.6	2.7	32.8	63.7	23.1	2.8	8.7	68	57
Uttar									
Pradesh	138.8	2.1	33.0	41.7	37.0	5.6	12.6	118	50
West									
Bengal	68.0	3.0	27.6	57.7	27.2	3.7	8.8	77	57
India	843.9	3.0	29.2	52.1	30.6	4.3	10.3	91	55

Source:

Population

Census of India 1991, Series 1, Paper 1 of 1991, p. 25.

Birth, Death, Infant Mortality

Registrar General's Newsletter, July 1991, vol. 22, no. 3, pp. 11-14.

Life Expectancy

Registrar General's Newsletter, April-July 1990, vol. 21, nos. 2 and 3.

Total Fertility Rate

Ministry of Health and Family Welfare. Yearbook 1987-88: Family Welfare Programme in India, Government of India.

PCY Prices

Tata Services LA 1989-90. Statistical Outline of India, p.6.

Poverty Line

Central Bureau of Health Intelligence, Health Information India, 1990, Directorate of Health and Family Welfare, Government of India, p. 216.

Literacy

References not available.

These figures clearly indicate an improvement in the state of health in India, particularly in the dramatic decline in the mortality rate. However, despite declining mortality, the survival standards are comparable to many of the poorest nations of Sub-Saharan Africa. Even the obvious gains seen in various frontiers of health care might be misleading, keeping in view the dramatic differences between the health status of such states as Madhya Pradesh, Uttar Pradesh, Bihar, Orissa, Rajasthan and Andhra Pradesh, on the one hand, and Manipur, Kerala, Maharashtra and Punjab, on the other. This fact is clearly brought out in Table 5.

These figures, coupled with subsequent discussions in this paper, will make it abundantly clear that the health status of the people of India, as elsewhere, is intricately linked with their social and economic status as well as the social and political reforms that the concerned society has undergone. This is evident from the fact that although Kerala is not as economically advanced as Maharashtra or Punjab, it is doing extremely well in terms of its health status due to its long tradition of socio-political reforms, better status of women and egalitarian movements. It is also important to mention here that even within the states there are areas of darkness. Drought-prone districts in Maharashtra or the hill regions of Kerala are examples.

Similarly, there is a clear indication that such critical aspects as infant mortality rate, maternal mortality rate and fertility rate are directly linked with maternal advancement, which in turn is directly linked to both the social and economic status of women (see Figure 1).

Figure 1

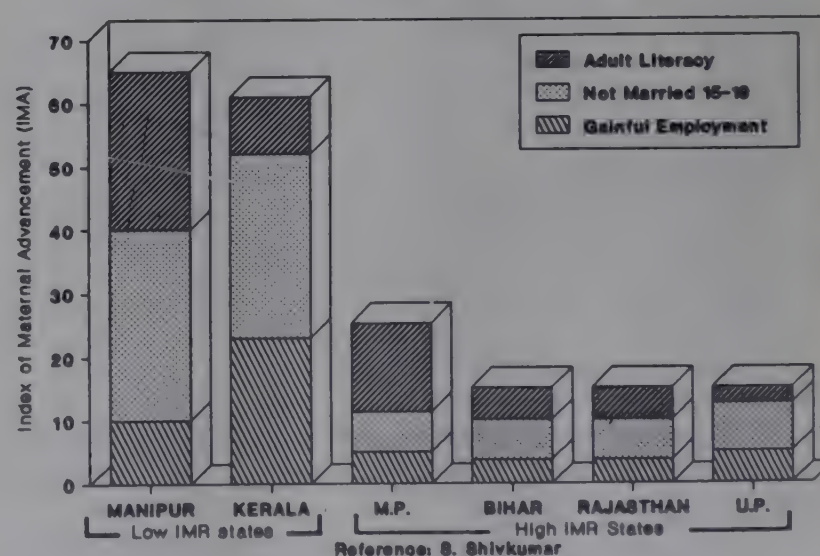
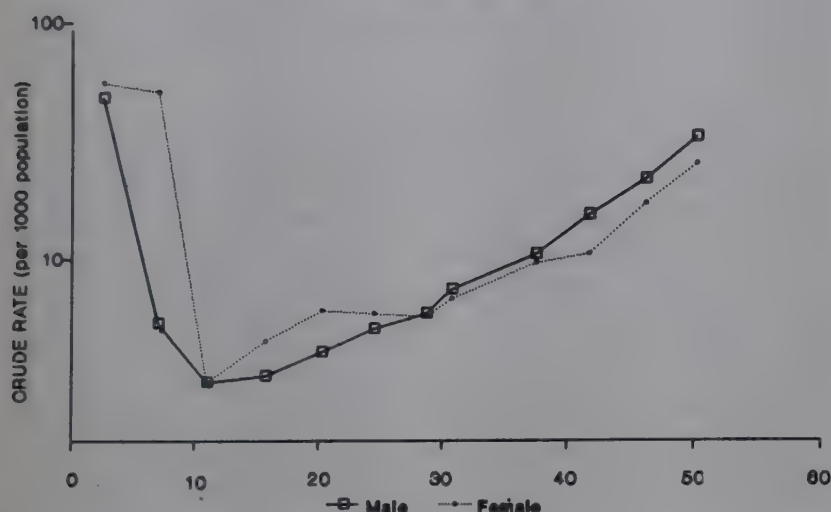
Index of Maternal Advancement (IMA)
in Low and High IMR States, 1981

Figure 2 shows the age- and sex-specific death rates in India. Among children the chances of survival are better for boys than for girls. In early adolescence, it is at par, but during the childbearing age (15 to 34 years),

female mortality is higher. This is particularly striking in the peak years (20 to 24) when maternal mortality takes a heavy toll. Interestingly, after the age of 35, the death rate among females is lower than among males.

Figure 2
Age Sex Specific Death Rates
In India (1978)



A declining sex ratio has persisted in India throughout the century, which is also linked to the reproductive health problems in India which women, particularly in rural areas, face. Improvements in this area have been marginal and slow (see Table 6).

Table 6
Sex Ratio (Females per 1,000 Males), India, 1901-1991

Year	Sex Ratio
1901	972
1911	964
1921	955
1931	950
1941	945
1951	946
1961	941
1971	930
1981	934
1991	929*

*Provisional.

There are sharp differences between the health status of people in the rural and urban areas as well. This fact is borne out by Table 7.

This situation is directly linked with the percentage of people living below the poverty line in both the rural and urban areas, as well as their social status and the disproportionate growth of health infrastructure. This latter is evident from the fact that of the 60,000 allopathic doctors registered in Maharashtra, 31,000 live in Bombay, and of the 10,000 available beds in the state, one-third are in Bombay city where only 12 per cent of the state's

Table 7
Age-Specific Deaths for Children 0 to 4 Years, India

	Rural			Urban			Combined		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
1970	55.5	61.0	57.8	32.3	32.3	32.3	51.7	55.1	53.0
1978	54.0	54.3	54.1	30.0	31.1	30.7	50.0	50.2	50.1
1984	44.2	48.2	46.2	22.6	23.8	23.2	39.5	43.0	41.2
1985	41.4	45.3	43.3	19.4	22.1	20.7	36.64	40.4	38.4
1986	38.6	43.3	40.8	20.3	21.5	20.9	34.7	38.6	36.6
1987	37.8	41.8	39.7	18.1	18.2	18.2	33.6	36.8	35.2

Source: Registrar General, Census operations.

population resides. Similarly, a gross estimate shows that out of the government's per capita expenditure of Rs 40, 30 per cent goes to rural areas and 70 per cent to urban areas. In the cities the municipal bodies spend another Rs 50 per person per year. Thus, the total government expenditure for the cities is Rs 161 per person per year, while in the rural areas it is Rs 16. The situation is slightly different in states like Punjab where the growing political, social and economic clout among the rural peasantry has ensured the development of better health infrastructure in rural areas.

Besides, when we look specifically at the current status of various communicable diseases we have reason to be concerned (see Table 8).

Table 8
Current Status of Various Communicable Diseases

Tuberculosis	— currently 9 lakh cases (prevalence 15 to 25/1000 population)	
Leprosy	— currently 25.46 lakh cases on hand of which 23.62 lakh are under treatment	
	Cases/lakhs	CFR
Whooping cough	21.12	0.02
Tetanus	4.28	12.32
Measles	191.05	0.34
Polio	2.72	2.14
Malaria	2.1 (1987)	API 2.2%
Filaria (estimated 342 million population are at risk)	3.0	
Guineaworm	1.10	0.08
Diarrhoeal diseases	1281.95	0.09
STD	117.83	—
Rabies	13.30	0.69

The current status of the tuberculosis programme reflects the current status of the basic health services in our country. We are today confronted with an alarming resurgence of malaria, Japanese encephalitis and kala-azar which are causing havoc in the lives of the poor in endemic areas. The response of the system to these problems has been inadequate and feeble, with the result that the mortality rate due to these diseases in endemic areas over the last few years has been alarming.

Box 1

KERALA

The history and experience of Kerala's health and demographic transition provides a number of lessons to other states in India and to other developing countries as well. Kerala came into existence in 1956 by the merger of the princely states of Travancore-Cochin with Malabar district. However, the disparities between Travancore and Malabar in terms of health services, health infrastructure, rigid caste barriers and lack of social interaction continued over two decades. Kerala now seems to be on the path of stabilising its population. The current health status of Kerala by salient indicators is as follows: the mortality rate is the lowest among developing countries (27 per 1,000 population), the average life expectancy exceeds 70 years for men and 72 years for women (it is 68 years for women in China), and its social structure shows the lack of discrimination between male and female children.

Prior to the formation of the state, the experience of Kerala demonstrates that demand creation and right to access are as important as the expansion in health care for health transition. In the area of health transition, social intermediation was used as an intervention at different levels of society by various agents to change the social and behavioural attitudes within the then prevailing social environment. The major element in Kerala's health transition was the integration of women and women's health in the mainstream of development.

The change in traditional beliefs, practices, social and behavioural attitudes and a powerful caste system which was once a strong barrier, accelerated the acceptance of Western medicine which was articulated in the demand for greater access to health care. Social intermediation reflected its relevance by means of its symbiotic links with education in the change in attitude of the lower castes for the success of the health care programme. The resistance towards vaccinations against small pox and cholera among the higher castes was overcome when the members of the royal family and government officials were inoculated first. Later, lower caste men and Brahmins and Muslims were appointed as vaccinators, helping the spread of vaccination. Vaccinations were then made compulsory in missionary and grant-in-aided schools enrolling children of backward castes, thereby bringing a large proportion of children under protection. In Malabar, however, the coverage remained low as children of backward/Untouchable castes remained outside the educational system.

Education and the training of women in the health profession was the second instance of social intermediation. Scholarships for women were instituted by the Travancore government in 1862 to enable women to pursue medical studies outside the state. Mary Poonnan educated in England, was the first woman to head a government department as Chief Medical Officer till 1942, followed by thirteen more qualified women who joined the Indian Medical Service.

Initially, Nair women, who could attend upon women of higher castes, were trained as midwives. Later, the employment of female personnel as vaccinators, compounders and sick nurses in health services led to weakening of prejudices among Brahmins and other high caste women.

Health transition would be incomplete without improvements in education. It facilitates the training of the medical and paramedical personnel from within the region. Christian missionaries who established schools and hospitals as an effective means to achieve proselytisation opened 879 schools for the underprivileged and Untouchables, which fostered the process of social intermediation. It was believed that resistance to

children undergoing formal schooling in such institutions was less than those attending *mutts* (religious centres) to study. Female education was promoted by the second half of the 19th century whereas only 6.3 per cent girls in Malabar were enrolled in schools in Travancore.

There is a distinction between supply and access to health care. While the implementation of land reforms and subsequent prosperity of the state provided economic independence to the lower castes, their conversion to Christianity led to social and economic upliftment and a sense of self-confidence. Narayana guru believed that if education is acquired, wealth and hygiene will follow. This inspired the Ezhavas (underprivileged caste) to collect funds from their community to set up schools. They now occupy a pre-eminent position in Kerala. In-patient facilities for the Pulayas (Untouchables at the suburbs of Trivandrum) in hospitals opened up as a result of a petition submitted by them seeking admission to the same.

The articulation of the public demand for access to and improvements in the health system through submission of petitions regarding opening of schools, hospitals, inquiries into diseases like elephantiasis was a regular channel of communication. Letters and telegrams were sent to seek immediate intervention at the outbreak of an epidemic or to complain about the inaction of local revenue or medical authorities in checking the spread of the epidemic. Such popular actions preceded the mobilisation of people for other causes by any political movement. In contrast, access to education and health was beyond the reach of the people of Malabar as they failed to recognise the limitations in their approaches to health care and did not modify policies and programmes through social intermediation.

Social intermediation becomes a vehicle of health transformation only if the necessary infrastructure is also brought into existence simultaneously. This is only possible when the objective of expanding health care is brought into practice, as in Travancore, where public dispensaries provided medical aid to all classes unlike in Malabar where the major hospitals were meant for the British army and the civilian population.

Second, the state government takes the direct responsibility for financing and devotes a large proportion of government revenue for this purpose, not depending on local funds and contributions to establish hospitals or clinics.

Training of health personnel for paramedical jobs, midwifery and vaccinations at the initial stages of health development is necessary. As early as 1862, training of medical subordinates, compounders and hospital assistants started with the efforts of the state, the London Missionary Society, and grant-in-aided private medical institutions. However, there were no medical training facilities in Malabar till 1917 and the acute shortage of medical personnel for epidemic work persisted.

Health transition in Travancore and Malabar took place in different stages. Travancore was ahead of Malabar in laying primary emphasis on building health infrastructure, in curative medicine, in creating demand through a process of social intermediation in its first stage of 100 years. The second stage, lasting fifty years, recognised the importance of preventive and public health measures at an accelerated pace. It was intimated that infant mortality in Malabar was twice as high as it was in Travancore, but by the late 1980s Kerala was able to converge the rates in all regions to the third stage of health transition which is still continuing and is characterised by a demand-led expansion of the private health care system.

HIGH COST OF MEDICAL CARE IN KERALA

The experience of Kerala shows a change in the health picture dominated by mortality to one where morbidity due to lack of access to protected water supply and proper sanitation facilities is the predominant force. Kerala's health profile presents a strange combination of low mortality and high morbidity.

Another dimension deserving attention is the rather high cost of medical care in Kerala. Despite low income per capita, the government has earmarked 10 per cent expenditure on medical and public health out of its total expenditure, which ranks Kerala highest among fifteen major states. Public expenditure on health and medicare maintained a growth rate of little over 13 per cent a year.

According to the National Sample Survey Organisation (NSSO), Kerala was ahead of other states during 1957-58 and 1961-62 in private medical expenditure. The results of a study conducted by the Kerala Sastra Sahitya Parisad (KSSP) showed a per capita cost of Rs 16.6 for medical treatment during the reference period of two weeks for those affected by morbidity. The cost ranged between Rs 8.8 to Rs 38.10 for the four socio-economic groups.

Though Kerala has been forging ahead in terms of bed-population ratio, doctor-population ratio and increasing number of medical institutions, the causes of the high cost of government medical care was accounted for by the growth of medical facilities in the allopathic system under the public sector. Besides, the expansion of ayurvedic and homoeopathic systems of medicine in the public sector has further increased the preference of patients for private medical facilities.

The other factor is the reduction in the younger population and an increase in the population belonging to the age group 65 and above. The fastest growing age group is the 65+ category whose per capita expenditure on health is four times that of the younger group between 19 to 64 years. This is partly because they are more prone to chronic illnesses and partly because they often need hospitalisation. The demographic transition accompanied by substantial increase in the proportion of the aged population in Kerala is bound to surface in the rest of the country as well. Thus, the provision of medical care to cope with the emerging morbidity pattern of its population and its financial implications is a major challenge facing the government.

Box 2

AMRELI CRIPPLED



In Amreli, men and women with walking sticks, nearly doubled over and crippled with pain are a common feature. This is a fluorosis-affected village where excessive intake of fluorine (11 ppm as against 1 ppm permissible by the Indian Standards Institute) in drinking water has affected 25,000 children and adults in Amreli and 50 per cent of the 1,500 residents in Ingrola.

Fluorosis is incurable and gradually worsens if strict measures are not taken in providing safe drinking water. The high intake of fluorine over long periods causes stiffening of joints, gastro-enteric problems, indigestion, gradual deformation of the bones, weakening of the teeth, and deformed fetuses, which cripples a person for a lifetime. Practically every household has one such case.

Patients like Mabuben Patil (35 years old) can barely sit due to grotesquely bent legs and bed sores; Raghav Bhai's (54 years) nervous system is affected and he cannot move his hand to feed himself; Shanti Ben's (45 years) head is only a few feet from the ground due to a deformed spine and legs; Thina Bhai Makani said that he had never seen the sky as a result of a stiff neck which does not allow him to look up. All these people use ropes hanging from the ceiling to hoist themselves up.

Fluorine was first discovered in the 1930s but no noticeable measures have yet been taken by the Drinking Water Mission set up in 1986. The Sub-mission of the Drinking Water Mission was formed to tackle with 8,700 problem-affected villages in thirteen states, the worst being Haryana, Andhra Pradesh and Gujarat. So far the task of providing safe drinking water is not complete. A project proposed in 1984 to construct a pipeline (with the help of the Dutch government) from the Kolubhar dam (involving an expenditure of Rs 525 lakhs) in Bhavnagar district to bring potable water to the affected villages is still underway.

Meanwhile, the people have learnt to suffer the worst consequences. Dr A.K. Susheela of the All India Institute of Medical Sciences, Delhi, says that it has been proved that fluorine can pass through the placenta, leading to miscarriages and the birth of deformed babies. Fluoride in toothpaste should have been banned in the affected states. While there is no cure for dental and skeletal fluorosis, soft tissue fluorosis can be reversed if adequate measures are taken. Although the Centre for Environment Education began teaching people the indigenous method (Nalgonda technique) to clean water by using alum, it did not achieve significant results.

Fluorosis has already hit the economy of these villages adversely, where those who are fit have moved to nearby factories to earn money to send home to help the ill. The measures being taken today are for the future, and those not yet affected, but what about those whose bones and bodies are bent and pain is their constant companion?

Box 3

NATIONAL HEALTH PROGRAMMES

To combat major diseases and to reduce mortality and morbidity, various health programmes have been undertaken at the national level with central support.

NATIONAL MALARIA ERADICATION PROGRAMME

This programme was launched in April 1958 with the broad objectives of reducing malaria-related deaths to less than 0.5 API by 2000 AD and maintaining the industrial and green revolutions. The various efforts undertaken by the central government, with 50 per cent financial assistance from the states, include regular rounds of spraying, decentralising existing malaria laboratories to the PHCs, eliciting public cooperation through voluntary agencies, undertaking an urban malaria scheme, and continuing research to eliminate the malaria-causing *Plasmodium falciparum*.

The shortcomings of the programme are in its implementation in the form of resource constraints, unreliable statistics, lack of health education and community participation. To prevent the programme from languishing on account of these shortfalls, it is believed that the government should appoint a consultative committee of experts from non-government organisations to determine alternative strategies.

NATIONAL FILARIA CONTROL PROGRAMME

Wuchereria bancrofti is the most prevalent cause of filariasis affecting 40 per cent of India's population. The incidence of this disease has increased during recent years in both endemic and non-endemic areas characterised by poor drainage facilities and collection of stagnant water. The vector causing the disease is *Culex quinquefasciatus* which breed on water plants like pistia and eichornia. The continuous transmission of *W. bancrofti* causes elephantiasis.

Diagnostic and immuno-diagnostic methods include a microscopic examination of blood smears, extensive use of diethyl carbamazone and use of larvicides such as MLO, temphos, pyrosene oil and fenthion. These methods have succeeded in reducing the disease rate and micro-filaria count.

Under the National Filaria Control Programme, by the end of 1989 there were 204 control units, twenty-seven survey units and 186 filariasis clinics in the endemic areas. During the past three years, a slight increase in filariometric indices has been seen in the states of Andhra Pradesh, Assam, Bihar, Goa, Kerala, Madhya Pradesh, Maharashtra, Orissa and West Bengal.

Studies indicate that the disease can be controlled through community involvement, a coordinated and integrated approach in programme implementation, and research in the socio-cultural and economic factors which influence the causation, transmission and control of filariasis.

NATIONAL IMMUNISATION PROGRAMME

According to UNICEF, about 500 children are paralysed daily due to the six vaccine-preventable diseases—diphtheria, pertussis, tetanus, poliomyelitis, tuberculosis and measles. The expanded programme on immunisation aims at achieving self-sufficiency in vaccine production to control these childhood diseases. Under the programme, the Government of India assists the states with the supply of vaccines, providing immunisation services, disease surveillance, training of health personnel, monitoring, development of infrastructure, cold chains for storage of vaccines, and sterile syringes and disposable needles to counter the spread of AIDS.

There are several problems in the implementation of the

programme, such as the short supply of cold chain equipment, use of inappropriate temperature control methods and erratic electricity supply. Shortfalls in programme management and coordination abound in the form of poor disease surveillance, maintenance of records, scant attention to investigation of the reported outbreak of diseases, poor quality of vaccines due to time lags in transit and poor supervision.

NATIONAL PROGRAMME FOR CONTROL OF TUBERCULOSIS

Tuberculosis is a disease caused by *Mycobacterium tuberculosis* and affects the lungs and other parts of the human body. It is transmitted through infected sputum and mainly affects the poorer socio-economic groups. It is a major public health problem in India affecting the rural as well as the urban population.

A national TB programme was formulated to diagnose, treat and provide preventive services to the bulk of TB patients. The primary aim of the programme was to detect and treat sputum-positive TB patients on a domiciliary basis. For this, the personnel of the existing peripheral medical and health institutions tour the district to identify TB cases. Under the programme, 375 districts have been provided with TB centres, distribution of anti-TB drugs, material and equipment.

For the treatment to be more effective, chemotherapy by means of drugs containing rifampicin and pyrazinamide has been evolved. Several problems in the area of implementation, such as lack of financial resources, existence of different administrative controls and the apathetic attitude of medical personnel tend to hinder progress.

NATIONAL LEPROSY ERADICATION PROGRAMME

Leprosy, caused by *Lyco bacterium laprase* affects the skin, peripheral nerves and nasal tracts of people of all ages. The bacteria enter through the respiratory route and the skin causing either multi-bacillary or pauci-bacillary TB. The prevalence of leprosy is high among males from the poorer strata of society.

The National Leprosy Eradication Programme (NLEP) aims at early detection and regular treatment through a course of multi-drug treatment, education of patients and rehabilitation of former patients. A total of 2.9 million cases had been cured of the disease since the inception of the programme until March 1988. The deformity rate has also decreased among new cases and the relapse rate minimised.

Post-clinical treatment involves rehabilitation through the thirteen leprosy rehabilitation and promotion units under the NLEP and through voluntary organisations which have been doing significant work in this area. Attitudinal changes should be brought about through community participation. Regular treatment would help in eliminating the disease altogether.

NATIONAL PROGRAMME FOR THE CONTROL OF SEXUALLY TRANSMITTED DISEASES

Sexually transmitted diseases (STDs) like syphilis, gonorrhoea, chancroid, lympho granuloma, venerum and granuloma inguinale are caused by bacterial, viral, protozoal and fungal agents. According to an expert estimate, 20 to 30 million people in the country are suffering from these diseases.

The National Sexually Transmitted Diseases Programme is a centrally sponsored scheme which aims at supplying material, equipment and drugs (benzathine and penicillin) for the new STD clinics. The programme involves teaching, training and research.

In addition to increasing the number of STD clinics, the areas

that need strengthening include training of medical and paramedical personnel at the PHC level, facilities for VDRL testing at the district and peripheral levels, assessing the magnitude of the problem, augmentation of existing clinics and stepping up of health education campaigns.

NATIONAL AIDS CONTROL PROGRAMME

Evidence of HIV infection among prostitutes in Madras prompted the Government of India to launch a country-wide surveillance under the National AIDS Control Programme. In April 1991, it was estimated that 5.67 persons per thousand had HIV infection. The major groups likely to acquire and transmit HIV infection are heterosexual, promiscuous persons, intravenous drug users and professional blood donors.

A National AIDS Advisory Committee was constituted by the Ministry of Health and Family Welfare which came up with certain guidelines for the admission of HIV positive patients: infection control, care of infected persons and their management. The Government of India, in collaboration with the WHO, has started implementing a programme involving education, prevention and control, blood safety, and clinical and programme management.

NATIONAL PROGRAMME FOR THE CONTROL OF BLINDNESS

According to an estimate, over 80,000 children in India become blind every year, of whom 50 per cent die. In view of the existing situation, a National Programme for the Control of Blindness was launched by the government in 1976 to reduce the incidence of blindness in the country from 1.4 per cent to 0.3 per cent by the year 2000 AD.

To achieve this target, the programme proposes to set up eye camps, establish permanent eye care facilities, impart health education, persuade more ophthalmologists to undertake cataract operations, develop the necessary infrastructure through mobile units and PHCs, establish regional training institutions, set up eye banks, combat childhood blindness through nutrition education and continue educational activities in the form of fellowships and workshops under the WHO.

NATIONAL GOITRE CONTROL PROGRAMME

Goitre is the enlargement of the thyroid gland due to the deficiency of iodine which is essential for the normal secretion of the hormone thyroxine. A low secretion of thyroxine would lead to permanent damage of the brain and cause cretinism, deaf-mutism, spastic diplegia and neurological defects.

The National Goitre Control Programme launched in 1962 aims at identifying goitre-endemic areas, supplying iodised salt and assessing the impact of control measures. It is estimated that 167 million people live in these known iodine deficiency areas. Regular consumption of salt fortified with iodine or a preparation of iodine-rich oil or iodised salts containing potassium iodate which supplies 10 to 15 parts of iodine per million parts of salt is recommended.

The government introduced the scheme for universal iodisation of edible salt containing less than 15 ppm of iodine in a phased manner by 1991, with coordination through state-level units. However, several administrative and legislative aspects have hindered the smooth implementation of this programme.

NATIONAL DIARRHOEAL DISEASES CONTROL PROGRAMME

Diarrhoea causes death due to dehydration and is responsible for 23 to 30 per cent of all deaths in children below 5 years. Studies reveal that the incidence of the disease is linked with water supply, literacy and personal hygiene.

Diarrhoea is caused by bacteria, viruses and other parasites. The rota virus is the most common organism causing diarrhoea

among children. Control of diarrhoeal diseases through the promotion of oral rehydration therapy (ORT) is part of a package of child survival programmes. Launched in 1981, the broad objectives of the National Diarrhoeal Control Programme are creating awareness in the community, educating mothers on feeding practices, diagnosis, and making available packaged oral rehydration solution. The programme has quite a few shortfalls due to the gap between planning and implementation, especially with regard to creating awareness on the prevention of the disease. The involvement of voluntary organisations would go a long way in minimising the incidence of diarrhoea.

NATIONAL GUINEAWORM ERADICATION PROGRAMME

Dracunculiasis or guineaworm is a water-borne parasitic disease caused by a nematode, *Dracunculiasis medinesis*, endemic to the regions where tanks, ponds or step wells are the main sources of drinking water.

Guineaworm infection is manifest in the limbs and trunk and causes disabilities which confine the individual to the home. Symptoms begin with the appearance of a blister, vomiting, diarrhoea and giddiness. The disease affects poor rural communities, especially males, and is more common during the summer months. Infected cyclops, a microscopic crustacean causes guineaworm infection when it is ingested.

The Guineaworm Eradication Programme consists of components such as case search operations, provision and maintenance of safe drinking water supply, chemical treatment of unsafe drinking water sources and health education. Since the implementation of the programme, endemicity has declined to 88 per cent of guineaworm cases. To prevent the disease, the State Public Health Engineering Department of the Rural Development Ministeries coordinate their work on rural water supply with the State Medical and Public Health Department.

NATIONAL KALA-AZAR CONTROL PROGRAMME

Characterised by irregular fever, enlargement of the spleen and liver, anaemia, and progressive emaciation, kala-azar gets its name from the strange muddy, dusky colour that it gives to the skin. It is spread by the sandfly that breeds in damp and warm places.

Kala-azar, once on the decline, has seen a resurgence in recent years. The worst affected regions are West Bengal and Bihar.

Even after the disease is diagnosed, treatment is hampered by the shortage of drugs and hospital beds, lack of monitoring the distribution of drugs at government dispensaries, and black-marketing of drugs.

The government should involve non-government organisations in imparting health education, providing sodium antimony gluconate and carrying out studies to assess the proper reporting and actual incidence of the disease.

During the first nine months of 1991, the dreaded kala-azar took its toll of 2,000 lives in different parts of Bihar, particularly north Bihar. Nearly 4.5 crore people in thirty districts ran the risk of being affected. The death toll took menacing proportions because various governments never took the warnings of the Harcharan Singh Committee in 1987 very seriously. The Committee had warned that failing urgent steps, kala-azar would assume serious proportions.

Unfortunately, the government in Bihar has failed dismally owing to apathy and callousness, in spite of the fact that the disease has been in existence since 1933. In 1977, kala-azar claimed 4,500 lives in four districts—Muzaffarpur, Valshali, Sitamarhi and Samastipur. The disease appears in epidemic

form every fifteen years. It is expected, therefore, that in 1992 kala-azar will take a frightening toll of lives.

There are ten districts in Bihar that are worst affected. In Vaishali alone more than 1,000 people have died in the past few years. The mortality figures could be much higher in the affected districts as the deaths reported were collected from referral hospitals, primary health centres and medical colleges. Figures are never taken from private clinics and hospitals. Such has been the devastating nature of the disease that several villages in Samastipur district have been wiped out. The capital too has fallen prey to the disease due to poor sanitation facilities and a large number of *khatahs* or cowsheds.

The disease had completely disappeared from Bihar in 1950 due to the intensive spraying of DDT. When the spraying was

discontinued the disease reappeared in 1964. Though the spraying was reintroduced after 1977, it failed to contain the disease as the spraying operation was not conducted in an effective manner.

Lack of political will, sheer callousness and apathy have led to this appalling situation. Having failed to contain the disease in Bihar, kala-azar now threatens Delhi, Rajasthan, Madhya Pradesh, Uttar Pradesh, Maharashtra and West Bengal. The Lok Sabha elections hampered the DDT spraying in June 1991 in Bihar. There are also allegations from different quarters that DDT meant for spraying is sold in the black market, that 70 per cent of funds allotted during the last five years had either been spent on the purchase of vehicles, spray equipment or on salaries of the staff of the kala-azar directorate.

The spectre of AIDS too is now looming large over the country. Available figures from selected states like Manipur, Tamil Nadu and Maharashtra (Bombay) reveal that there is considerable cause for concern.

Non-communicable diseases like mental disorders, cancer, hypertension, heart attacks and diabetes are showing an upward trend which could be due to greater case detection facilities and, of course, an increase of causative factors.

Health Services

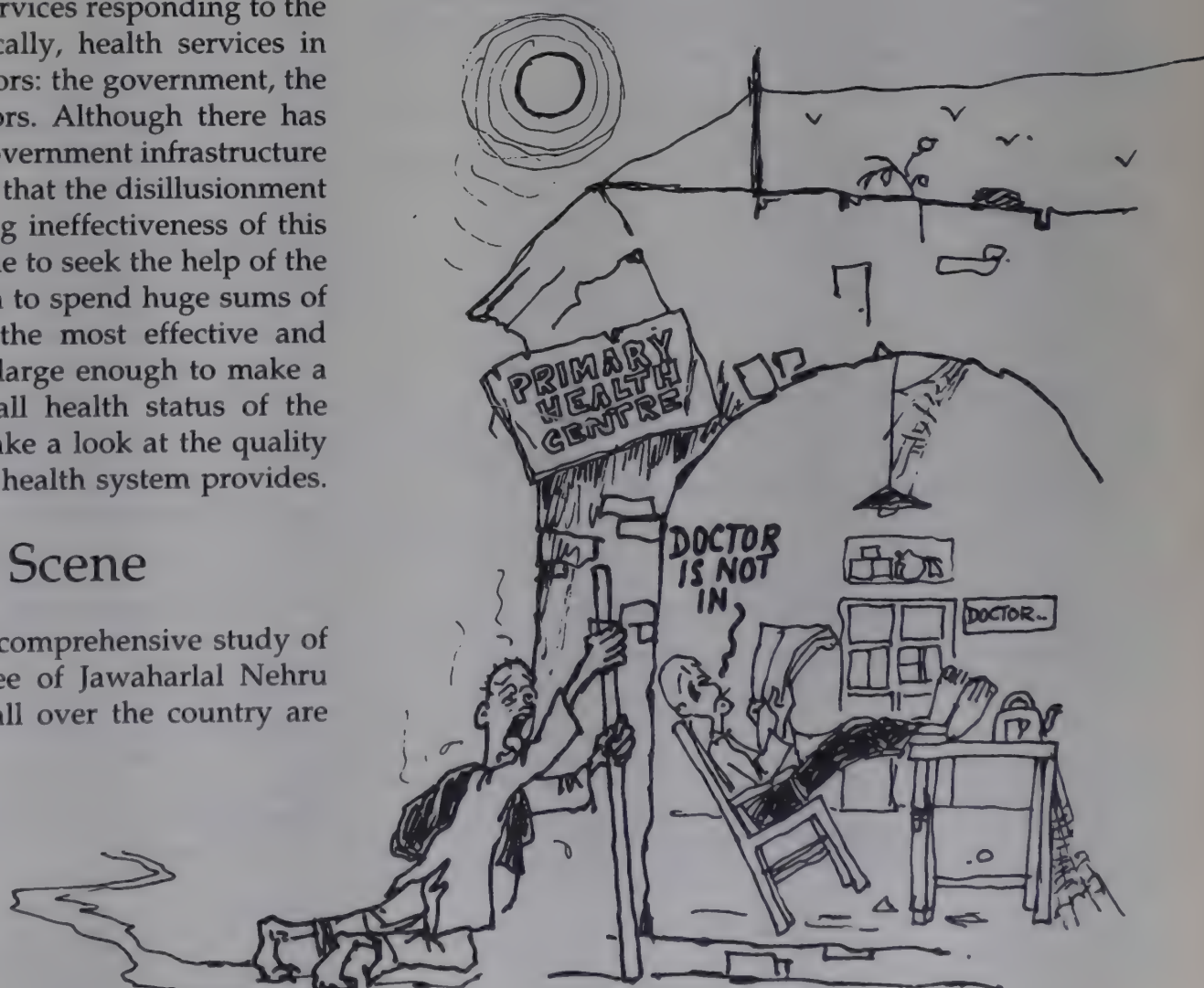
Given this overall situation, how well are our existing health care systems and allied services responding to the health transition in India. Basically, health services in India are provided by three sectors: the government, the private and the voluntary sectors. Although there has been a phenomenal growth in government infrastructure after Independence, it is evident that the disillusionment and frustration with the growing ineffectiveness of this sector is gradually driving people to seek the help of the private sector, thus forcing them to spend huge sums of money. The voluntary sector, the most effective and appropriate of the three, is not large enough to make a significant impact on the overall health status of the country. To begin with, let us take a look at the quality of services that the government health system provides.

The Rural Scene

Numerous studies, including a comprehensive study of nineteen villages by D. Banerjee of Jawaharlal Nehru University, reveal that people all over the country are actively seeking the help of the government health system but are totally frustrated with its response. No one could be satisfied with having to walk to a PHC 5 km away and discover that the doctor is never there or,

if he/she is there, the only thing that the patients are given is a piece of paper (the prescription). They have to travel to the nearest town to buy the medicine. This disturbing situation is evident from the findings of the ICMR study of PHC services.

According to the 1988 ICMR study on primary health care services, only 15 per cent of the PHCs in the country had the requisite ratio of one PHC for a population of 30,000; and in Uttar Pradesh the PHC had to cater to a population of about 120,000. Only 15 per cent of the PHCs had the requisite number of health personnel. The shortage of lady health visitors (LHVs) was acute; while an LHV should supervise four auxiliary nurse midwives



(ANMs), she usually supervised five to nineteen. The report added that about 10 per cent of the PHCs did not have any record of pregnant women, and the majority had no facilities for the routine follow-up of pregnant women with tetanus toxoid. Eleven per cent of the PHCs were administering iron and folic acid to 60 per cent of the pregnant women. The majority of the PHCs had no

facilities for the routine check-up of pregnant women for weight, blood pressure and haemoglobin. None of the PHCs maintained records of births and infant and maternal deaths. Nor were birth weights recorded. All medicines, especially antibiotics, were in short supply. Emergency equipment and life-saving drugs such as oxygen and steroids were not available in a large number

Box 4

KHOJ

(JODHPUR)

'KHOJ', or the search for a strategy to work for the improvement of the health status of women and children, was a planned and phased-out study conducted in the Osijan block of Jodhpur district by the Gramin Vikas Vigyan Samiti, in collaboration with VHA. In order to arrive at a realistic and acceptable intervention strategy and approach, the study addressed itself to the complex interplay of socio-economic and developmental factors in the health status of a community.

The study was conducted in twenty villages of Osijan development block in Jodhpur district with a total population of 35,493. These villages have one primary health centre (PHC), two mini PHCs, and eight sub-centres. Of the twenty villages, twelve are not within easy reach of any government health services. To avail of these services, most people have to walk 4 to 12 km while the services of the PHC are more elusive, at a distance of 40 to 45 km with no transport facility. The staff at the centres is inadequate and irregular, as also the supply of medicines. Health-related work is restricted to curative care and no health education or awareness is imparted. During the survey, only one sub-centre was found be functioning.

The high rate of infant mortality was a disturbing finding of the study since the majority of such deaths are preventable, as seen from the causes of IMR in Table 1.

Table 1

Prematurity	19.6%
Tetanus	4.9%
Fever	18.1%
Diarrhoea	19.6%
Pneumonia	31.1%

Only 0.9% deliveries were conducted in the hospital.

Poor immunisation of mothers and children played a major role in poor maternal and child health.

Table 2**Immunisation Status of Mothers**

88.8%	Not given any dose of TT
2.8%	Given one dose
8.4%	Given two doses

Table 3**Immunisation Status of Children**

0.5%	Fully immunised
10.9%	Partially
88.6%	Not at all

The reasons for the above ranged from lack of information and lack of motivation to such obstacles like inconvenient place and time of immunisation and non-availability of vaccines.

In the list of priorities of families, the health of the woman remains insignificant. The vicious cycle of overwork, under-nutrition and the added burden of pregnancy and lactation have a cumulative negative impact on the health of women. On average, a woman was found to have eight to ten pregnancies, of which only four to five survived. Urgent maternity care is difficult to obtain and the ANMs manning the sub-centres are generally absent. Thus, the woman is entrapped in a mesh of discrimination, left with only a sense of powerlessness and fear.

Literacy is another issue closely linked with caste and gender. Amongst the upper caste Brahmins, Rajputs and Charans, there were 60 per cent literate males, while among the lower castes like the Bhils and Meghwals, literacy was as low as 10 per cent. Literate females were found only among the high castes. While 70 per cent of the women spoken to during the study desired education for their daughters, they did not visualise it as a reality in the near future.

KHOJ (SEVAPURI)

Sevapuri is one of the twenty-two blocks of Varanasi district with a total population of 1.22 lakhs (1981 Census). Approximately 35 per cent of the population is landless and 45 per cent are below the poverty line. Twenty-eight per cent earn a livelihood from such activities as carpet and saree weaving and similar crafts. Children form a major part of the workforce in the informal sector, and were found to be exploited, in poor health and suffering from worm infestations.

Women contributed not only as caretakers of their homes and children, but also put in their labour in the fields and tended livestock. Living on poor diets, these women were found to be severely anaemic and malnourished.

The health status of the children was poor, with a high IMR rate of 127. Diarrhoea, fevers and vomiting accounted for maximum morbidity among children. The utilisation of government health services was poor, with only 6 per cent cases of ill-health among children being referred to the PHC. While 70 per cent expressed faith in private doctors, 23 per cent believed in home remedies.

The poor health of the child is closely related with the poor health status of the mother. Women face strong social pressures and have a very low status in society. They play no role in decision-making and thus lack self-esteem. The cycle is completed when they socialise their daughters with the same values and pressures.

The study determined that maternal health was a grossly neglected area, as can be seen from the following statistics: 39 per cent of the pregnant women were not immunised against tetanus, and 72.5 per cent did not receive iron and folic acid

tablets; 95 per cent of deliveries took place at home. Regarding natal care practices, in 52 per cent of the cases the umbilical cord was cut with a sterilised blade, in 36 per cent with an unsterilised blade, in 4 per cent with a sickle and in 4 per cent with a knife. In 46 per cent of the cases, the cut was treated with ash, in 38 per cent with antiseptic lotion, and in 15 per cent with other traditional concoctions. Fifty-four per cent of the cords were tied with unsterilised thread.

Post-natal complications were treated with domestic/folk remedies and in some cases by 'faith-cures'. People were found to visit doctors only in extreme cases.

The poor utilisation of health services is primarily because the infrastructure has not proved to be functional and community-oriented. The community is largely unaware of its existence, the services and facilities. The women, even if they are aware, cannot take independent decisions for themselves or their families to avail of the facilities. A few respondents also claimed that they did not go to the PHC because 'they give the same medicine for all types of diseases'. This clearly indicates the lack of individualistic or specific treatment that anyone availing of a health service would desire. The OPD records, when examined for the months of May and September, showed that in May there were 12 per cent TB cases, whereas this figure declined to 3 per cent in September. After making inquiries, it was found that the patients did not return after the first registration since there was neither a doctor nor any medicines available.

Interviews held with the PHC doctors for their side of the story revealed dissatisfaction with the district-level system where high-level corruption resulted in little resources left for the proper functioning of the PHC. They also complained of the lack of autonomy in decision-making at the PHC level which resulted in inefficiency.

KHOJ (GWALIOR)

The Saharia tribe, marginalised, alienated and exploited, inhabits five districts in Gwalior and Chambal divisions—namely Gwalior, Shivpuri, Morena, Guna and Datia. With an apathetic

and indifferent attitude towards their adversities, the Saharias are unmatched in the trap of poverty, illiteracy and ill-health, each factor reinforcing and binding the other.

The study emerged as a result of this dismal backdrop. Health care is mostly inaccessible, with the PHCs located more than 10 km from the village in 40 per cent of the sample villages. The staff is either inadequate or given to shirking responsibility. The more remote areas are totally ignored by the health workers. The supply of medicines is also inadequate. The health workers are oriented towards the curative model of health care, thus neglecting the more important promotive and preventive aspects of health care.

Lack of awareness because of the poor communication between health workers and tribals results in the poor utilisation of health services. The percentage of children immunised was as low as 4 to 7 per cent in both the blocks surveyed. Similarly, 60 per cent of the couples reported no knowledge of family planning, and of the 40 per cent who had some knowledge, 80 per cent did not practise it. Likewise, in the area of antenatal care, it was observed in the tribal areas that 80 per cent of the mothers received no antenatal care, and all deliveries were conducted at home with only 43 per cent of them conducted by untrained *dais*.

There was no female health worker or lady medical officer in the area, and women were forced to silently endure several health problems like menstrual irregularities and leucorrhoea as they were too inhibited to talk about these.

The situation was not vastly different when it came to the treatment of other diseases as well, as is seen from the percentage of people utilising the services of the government hospital, the primary health centre/sub-centre or village health worker: only 9.7 per cent cases in Ghatigaon, and 4.1 per cent cases in Shivpuri. The people's lack of confidence in the government infrastructure was obvious. Opinions varied from 'tribals are discriminated against', to 'no drug is available' or 'no personnel are present'. Despite the fact that TB and malaria are serious threats to the health status of the tribals, there is no programme to deal with these diseases.

of PHCs.

Studies on the utilisation of services as reported by the Population Centre, Operation Research Group, Population Research Centre, etc., reveal the following:

- Only 6.3 per cent of deliveries are institutional while the remaining are conducted at home. Only 18 per cent of births are attended to by trained birth attendants (28 per cent in urban areas and 12.3 per cent in rural areas)
- Over 90 per cent of the population is aware of the primary health centre or sub-centre as a source of medicare and health services, but only 31 per cent reported using the formal health care system. Of this group only 40 per cent used the informal health care system as well, which consists of private practitioners, *vaid*s, *hakims* and other traditional systems of care
- Of the users of the formal government health system, 9 to 23 per cent expressed their dissatisfaction with the services. Attempts were made to elicit from the non-users the reasons for non-use: 65 per cent said the services were poor, 55 per cent said they could not travel the distance, and 16 per cent complained of the non-availability of medicines
- The doctor not being available was not a major cause but the non-availability of the ANM at the sub-centre definitely was a major cause for 26 per cent of the women not seeking MCH facilities at the centre
- Long waiting hours and the unsympathetic attitude of the staff were other reasons. The role of the health worker was seen as important in the utilisation of services. Much depends on the behaviour of the staff and the frequency of visits of the health workers to the village
- Eighty-six per cent of the respondents reported that the health workers visited their village. The ANM was reported to visit once a week (55 per cent), the LHW once a month (55.4 per cent) and the doctor once in three months (13 per cent). The CHV's visits were even rarer, once in four months, as reported by 16 per cent of the respondents

The Urban Scene

According to the 1991 Census, 25.72 per cent of India's population lives in urban areas. Of this population, about 20 per cent live in slums in the big cities, ranging from 18 per cent in Bangalore to 42 per cent in Calcutta. According to all estimates, there will be a further increase

in the number of people living in conditions of stress in the coming decades. The health status of the people living in urban areas is by and large better than that of the rural population, but this may not be true of those living in urban slums. An ICMR study found that in the urban slums of Madras, Delhi and Calcutta, infant mortality ranged from 54 to 91 per 1,000 live births.

The health problems of the people living in urban

Box 5

CHOLERA EPIDEMIC

The outbreak of the cholera epidemic in Delhi in 1988 took a staggering toll of 1,500 lives with hundreds of others falling ill with infections.

The epidemic had spread to 625 slum clusters spread over forty-four resettlement colonies. The outbreak of the epidemic was no coincidence—the abysmal sanitary conditions and lack of basic amenities like public lavatories, proper drainage, proper refuse disposal, shallow handpumps, all contributed to increasing and spreading the infection. Children under 1 year of age were the worst affected as they were nutritionally deficient. Over and above this, the food supplied under the ICDS supplementary nutrition programme was often unfit for consumption: bread was frequently covered with fungus, and biscuits and *chanas* were stale. Although over a period of one year the number of confirmed cholera cases increased five-fold, the government agencies were largely negligent.

Half-hearted, populist and politically motivated measures on the part of the government while dealing with relief activities worsened the situation. The government withdrew disbursement of compensation for cholera deaths. Little effort was made to clear the flow of sullage, which blocked drains and community

latrines during the monsoons, rendering them unusable.

In times of stress, as in the case of epidemics, an ill-informed populace usually goes into a state of panic. The government-controlled media takes too long to arise from its slumber to inform the people. Handbills on prevention and cure lie stacked in corners. During this epidemic too, the situation was no different. Specifications were unclear on the administration of ORS, shallow handpumps were not painted red to warn people of contaminated water, antiseptic measures were sacrificed for mass vaccinations. Apathy and confusion reigned.

In addition, inadequate and disproportionate funding by the government, especially in the Trans-Yamuna and south Delhi areas, lack of coordination at all levels while dealing with relief operations, minimum effort to teach people the significance and administration of ORS, and misuse of drugs and understaffed hospitals caused more damage than was anticipated.

It is hoped that the frequency of sporadic cases of cholera and the number of deaths which took place will prompt policy-makers to think deeply and sincerely about the root causes of such tragedies and formulate ways to prevent them.

Box 6

SICK HOSPITALS

Neglected casualty ward!

Ill-equipped casualty ward!!

A hospital that cannot heal patients?

Emergency wards yet to tackle emergency!

Hospital reeling under scarcity of staff, medicines!

These are only a few of the headlines reported in the dailies. Shockingly, these reports are based on the status of hospitals in the capital city of Delhi. Why? What ails our hospitals? An out-patient registration slip says it all: Name: Unknown, Age: 25, Sex: Female, Diagnosis: 90 per cent burns.

The woman, unconscious and hovering between life and death, is rushed to Safdarjung Hospital, where an entry on the slip reads 'No bed available'. With each passing second drawing her closer to death, the victim is then jolted and bumped to distant Ram Manohar Lohia Hospital where the doctor in the emergency ward refers her to Lok Nayak Jayaprakash Narain (LNJP) Hospital. Once again the journey starts. By the time the woman reaches LNJP, she has already reached her final destination. It is not only the shortage of beds but also of staff that has assumed serious proportions in the emergency wards of Delhi's hospitals.

The prestigious All India Institute of Medical Sciences (AIIMS) is not an exception. On average, the casualty ward at AIIMS gets fifteen to twenty different emergencies. Apart from less life-threatening conditions, many of the cases requiring admission

and treatment are sent elsewhere. Even the largest hospital in east Delhi seems to have an apathetic administration, a belligerent union and demoralised doctors. According to the doctors there is a regular fraudulent practice at the hospital which involves stealing expensive medicines and selling them elsewhere. Except on a few occasions, the Ram Manohar Lohia Hospital's casualty ward has never been tested by a 'real emergency'.

Far from measuring up to its perceived role as one of the main resorts of north Delhities in emergencies, as the Sura tragedy clearly demonstrated (see Box 11), the emergency services at Hindu Rao Hospital are going from bad to worse. Even the private hospitals are not in any way better than government hospitals. If the casualty and emergency services are any indication, none of the major hospitals measure up to the desired standard.

The reasons for this apathetic state are varied:

- Lack of infrastructure
- Inadequate manpower
- Short supply of drugs
- Ill-equipped laboratory services
- Unhygienic conditions

And, above all, a demoralised group manning the most noble profession in the world!

Box 7

ASHOK VIHAR JHUGGI DWELLERS' SHOWDOWN FOR THE 'RIGHT' TO DEFECATE

New Delhi. A few thousand men, women and children of the *jhuggi* clusters in Ashok Vihar converged in front of the north-west district DCP's office and protested against the ban on their 'right' to defecate in the open. A resolution passed at the end of the demonstration said that if the ban was not lifted, the Lt. Governor would awake on 1 March to see them at his own door.

That apart, the day was an anti-climax. A real-life drama that promised to be a tragi-comedy, in fact turned out to be a farce. The *jhuggi* dwellers had been crying themselves hoarse the previous week, threatening to protest the ban in a most unusual way—by defecating before the Ashok Vihar police station (which, incidentally, houses the DCP's offices too).

However, when it came to the crunch, the *jhuggi* dwellers and their leaders just could not gather the courage to throw caution to the winds. They did come to the protest venue, they did shout slogans castigating the High Court ban on their 'right to defecate' and against the 'harassment' by the police. But they did not carry out the ultimate threat.

'Good for us', said a policeman posted on the street opposite the police station, and on which the men, women and children squatted and listened to a few Congress (I) leaders spewing out threats, including that which was not carried out. The police, in fact, were prepared for any eventuality, though many expressed their 'sympathy' for the *jhuggi* dwellers.

The DCP, north-west, Mr Deep Chand, on the other hand, felt that the police's image was being sullied for no fault of theirs. 'Why are they demonstrating here', he demanded, and added that the Commissioner of Police had already made their 'position' clear. An affidavit filed in the High Court put the responsibility of enforcing the Court's ban on defecating in the open, in and around a Delhi Development Authority (DDA) park in the area, on the DDA.

'They own the land where the park is situated, and the residents who went to Court over the issue live in a DDA colony. Why should we be penalised for trying to do our duty. In fact, it is the responsibility of the watch and ward staff of the DDA to enforce the ban. They do have a security staff with them, don't they', Mr Deep Chand asked, irked at the criticism of the police by the *jhuggi* dwellers.

The issue had for long been agitating the people of the DDA colonies around the park, the inhabitants of Shahid Sukhdev Nagar, Shahid Udham Singh Park and Chandrashekhar Azad Nagar (the *jhuggi* clusters), besides the DDA, the police and the railways. Boxed in as they are by some railway tracks on one side and the Wazirpur industrial area on the other, the only place where the *jhuggi* dwellers could defecate was the DDA park on the other side of the tracks.

Unfortunately, although it was a necessity for the *jhuggi* dwellers, it was not pleasant for those living in the DDA flats adjoining the park. They complained to the DDA which constructed a 1 km long wall to keep them away. But the wall was breached a number of times over the months and years. The police were called. Some arrests were made, but in vain. The problem persisted and ultimately the residents went to Court.

The High Court ruled that the *jhuggi* dwellers be prevented from defecating in the open. 'Where should we go', said a man affected by the ban. A question that remains to be answered.

slums stem from a double burden: the burden of health problems associated with poverty and environmental pollution. One-third of the urban population is not covered by a safe drinking water supply, only 8 per cent of the cities have an underground sewage system, and 31 per cent had no sanitation facilities.

Unplanned urbanisation and the disorderly growth of urban settlements have led to the creation of conditions conducive to the proliferation of insect vectors of disease. Large water bodies are left behind as a result of road or house construction and other man-made problems that have led to urban malaria, urban filariasis and urban dengue. In Tamil Nadu, 50 per cent of malaria is contributed by Madras city alone, largely as a result of uncovered overhead tanks and wells. Dengue, which was a sporadic disease in our country, is now an urban disease with periodical outbreaks and is clearly the result of the urban process. The cities of Patna, Kanpur and Guwahati which until 1940 were free from filariasis are now endemic areas. Areas around Lucknow which were non-endemic up to 1950 are now no longer so. Filariasis today is a spreading disease exposing 300 million people in the country to risk of infection. The occurrence of vector-borne diseases is a hallmark of the urban scene today.

Tuberculosis, classically a disease of overcrowding and poor ventilation, is found in urban settlements in slum areas. Not only is the incidence high, the onset of the disease is early. Forty per cent of urban families live in single rooms. This proportion is 70 per cent in Calcutta and 82 per cent in Bombay. The urban housing backlog rose from 2.9 million dwelling units in 1971 to 4.8 million in 1981, and could rise to a further 7.2 million in the early 1990s.

Urban health care is a tale of two cities. The middle and upper classes have access to the best health services of both the government and the private sector, while the other half usually live in a highly unhealthy environment, seeking out services from callous, crowded, over-stretched, and grossly mismanaged government hospitals or local quacks. Since there are hardly any organised referral services, functional government hospitals are overcrowded. Their catchment area includes the huge rural hinterland where government services are mostly defunct.



In most municipalities public health usually means an unmotivated sanitary inspector, a few sweepers and inadequate drainage, sanitation and drinking water facilities due to overpopulation. It is a matter of shame that after forty-five years of Independence, slum dwellers in the capital of the country have to launch an agitation for their right to defecate in public places!

The Private Sector

The growing disillusionment with the government sector has led to the incredible growth of the private sector in health care. About 78 per cent of the doctors in India work in this sector. A micro study showed that out of 100 people who fell sick, only thirteen went to the government hospital, seventy-seven went to the private sector while the rest resorted to home remedies. A recent study conducted by the Voluntary Health Association of India (VHAI) and the Rajasthan VHA shows that the number of beds in the private sector in Jaipur city have increased thirteen times during the last two decades. The number of in-patients in the private sector has increased eighteen times during the same period.

This sector is unusual in its variety and scope. Multiple systems coexist at any of these practices where there is an 'eclectic' system of medicine combining therapies from various systems. This sector also shows variations across states. Another interesting feature of this sector is that it has taken note of the purchasing power of their clients and their socio-cultural norms while responding to their felt needs. The cadre of registered medical practitioners (RMPs) is one outcome of this situation.

Since the private doctors in our country function in a market economy and are answerable to no one about what they do, many of them take advantage of this

situation. They are often irrational and prescribe drugs which sometimes prove harmful. The Jalgaon survey found that the unnecessary use of injections in the district is rampant. Out of every 100 patients treated by private doctors, as many as eighty-four received injections. Many well-known doctors are of the opinion that barring immunisation, not more than ten patients out of every 100 need injections. For example, out of every 100 patients with diarrhoea, seventy-three patients were administered injections (excluding the intravenous drip that is necessary in the case of dehydration).

In most districts, sub-divisions and small towns, it is usually the doctors of government hospitals who dominate the private sector. It is not rare to find these doctors doing a roaring private practice at the cost of their responsibilities as government servants in sub-divisional and district hospitals.

Some recent studies by Monica Sharma and R. Duggal show that the private sector is a significant source of primary health care as well. This includes services like immunisation which are available for both rural and urban areas and all income groups. But there is little evidence to show that the quality of the private sector is such that it will contribute positively to the overall health status. A recent household survey by Vishwanathan and Rhode reported that only 78 per cent of those regarded by the villagers as doctors had some medical qualification and only 3 per cent had an MBBS degree. They also reported that most of the therapy provided was inappropriate.

Given the fact that this sector will continue to play an important role in health services in India, a strategy has to be evolved to involve it in overall health care. A major area of reform is to develop regulatory policies for this sector to improve quality without tampering with access and increasing the cost. A rational drug policy will go a long way in diluting the nexus between the drug industry and the medical practitioners.



Box 8

DRUG POLICY AND THE PEOPLE

The Hathi Committee Report of 1975 was a landmark in the history of pharmaceuticals. It recognised that to ensure the availability of essential medicines, a list of essential drugs has to be made, and that to prevent price hikes, profits on drugs must be curtailed, with the least profitability being permitted on essential and life-saving drugs. The Hathi Committee then recommended the withdrawal of hazardous and irrational drugs.

A review of the drug policy was initiated in 1984 as the pharmaceutical industry had complained of inadequate profitability. The National Drugs and Pharmaceuticals Development Council that was formed had a significant number of representatives from the pharmaceutical industry. It was the nation-wide campaign by health and consumer groups that stalled the recommendations of the NDPDL from becoming the basis of the National Drug Policy.

It was because of years of back-breaking work that the people-oriented Rational Drug Policy was formulated by the network of health, consumer and drug activists and academicians. Their demands were:

- to ensure adequate production, distribution and availability of essential and life-saving drugs
- to withdraw irrational and hazardous drugs
- to ensure the availability of unbiased drug information to medical professionals and consumers
- to ensure quality control
- to promote self-reliance

It was obvious that any pro-people or pro-health recommendations, be they from the Hathi Committee or from the consumer and health groups involved in rational drug policy, were systematically marginalised.

Regarding the withdrawal of hazardous drugs, the historical EP (Estrogen Progesterone) campaign in itself highlights the bottlenecks in achieving this. The campaign lasted over eight years, leading to a tremendous increase in drug awareness and amendments in the Drug and Cosmetics Act of 1940. It was the first time that a direct confrontation took place between the health and consumer groups and manufacturers of hazardous drugs. The ban on EP drugs by the Drugs Controller of India in mid-1982 came into effect only in June 1988 because of stay orders granted to the manufacturers. This was true in the case of fixed dose combinations of chloromphenicol and of steroids, banned by the Drug Controller of India on 3 November 1988. Ironically, it was in 1980, eight years prior to this, that the Drug Consultative Committee had recommended their immediate withdrawal.

As regards drug information, whether it be to warn pregnant women, children or the elderly, has not been made mandatory as yet. Information is still being provided in medical jargon on packages in microscopic size in English only. The majority of drugs bought over the counter, without a prescription, are dispensed by unqualified employees in chemist shops, or are prescribed by RMPs and indigenous medical practitioners, many of whom are not familiar with English. Therefore, it is not that the prescriptions of qualified medical practitioners are a great tribute to the practice of rational drug usage.

The fourteen deaths due to adulterated glycerol which led to the creation of the Lentin Commission was followed by IV contamination deaths in Delhi. This brings us to the area of quality control. Investigations claimed that 30,000 bottles of contaminated IV fluid were sold. Had these IV deaths not occurred in Delhi and that too, in the prestigious AIIMS and

Safdarjung Hospitals, the public would probably not have been alerted and a tragedy on a much larger scale could have occurred (see Boxes 9 and 10).

The debate today is on the issue of drug pricing. The drug manufacturers maintain—and try to convince the public through advertisements—that the drug industry is suffering and if drug production is not made remunerative, they will be forced to stop the production of essential and life-saving drugs, and concentrate on producing cosmetic items and food supplements. This was an over-reaction to the Chemical Minister, Mr Gurupadaswamy's statement, that the government is mandated to decrease or freeze drug prices as stated in the National Front's manifesto. Moreover, the drug industry is well aware that the consumer and health groups would at such a time bring up all their demands pushed aside in 1986 when a new drug policy—Rationalisation Measures for Quality Control and Growth of the Pharmaceutical Industry—was announced by the chemicals ministry.

The question is no longer merely why over 60,000 formulations are being sold when 70 per cent are irrational combinations or why Vitamin D available in abundance from sunlight in a tropical country like ours must be packaged with glucose and sold at a high cost. It is the advertisement that makes products like these highly successful in terms of sales. If Glaxo ranks as the first drug company, it is hardly due to its production of essential and life-saving drugs.

Today, the climate is such that the colonisation of our minds towards the West is best expressed as 'foreign is better'. Putting thousands of hectares under potato cultivation for potato chips instead of wheat in Punjab, and exporting vegetables and fruits in exchange for soft drinks is absurd. The Pepsi project with 30.8 per cent foreign equity share was, ironically, launched on Independence day when the nation celebrates its freedom!

Way back in 1981, a few concerned health personnel began work on the issue of drugs to ensure the production of essential drugs for primary health care. With deeper involvement it became clear that the policies made are distorted according to the pressure of vested interests of big industrialists, liquor barons, construction lobbies or the pharmaceutical manufacturers wanting to sell hazardous or irrational products: the common factor being more profit.

It is also clear that a rational drug policy is not favourable to these vested interests. A rational drug policy as an integral part of a rational health policy is only possible if the other policies, e.g., the industrial policy, are also based on the same understanding of development: where growth of drug production, irrespective of the nature of drugs, is not what is seen as growth, but the growth of essential drugs, drugs of good quality at a reasonable price, and weeding out irrational and hazardous drugs is seen as an improvement.

A drug policy, would, to an extent, influence which drugs would be 'available', in what amounts, of what quality and at what price. The other policy changes would influence what will be grown, distributed, sold and at what price. Never before have the lives of so many people been so 'remote-controlled' and in such increasing spheres. Some corporate bodies, e.g., Ciba, Sandoz and Bayer, are into pharmaceuticals, pesticides, and business. On their behalf the concerned governments pressurised Third World governments to change their policies, as was the case with Sri Lanka and Bangladesh when they tried to bring in a people-oriented drug policy.

While health and consumer groups in the Third World are struggling hard to ensure the availability of basic needs and

basic health services, Geneva decides the fate of numerous countries and their millions. A potentially irreversible process of recolonisation is being worked out which will be much worse than the East India Company's arrival in India. Several questions can be raised: Why do most wars and conflicts occur in the South? Who benefits? Who loses? Who are the manufacturers of armaments? What have war, peace and defence budgets got to do with health? What has the esoteric-sounding GATT

(General Agreement on Trade and Tariffs) and Uruguay Rounds got to do with the lives and health of our people? It must be said that India stands isolated and alone in resisting some of the changes which are not in the interests of its people, but only in the interests of the technologically advanced countries. The pressure to give in is tremendous and the implications of succumbing would be disastrous.

Box 9

THE LENTIN COMMISSION: CHILLING FINDINGS

Between 21 January and 7 February 1986, fourteen patients died in Bombay's J.J. Hospital of a cause totally unrelated to the ailments that brought them there. A Commission of Inquiry was appointed, headed by Justice B. Lentin, to investigate the deaths. For seventeen months, this High Court judge together with his staff, sifted through the evidence, cross-examined 120 witnesses, recording 3,732 pages of evidence. The facts, reported daily and faithfully in the press, electrified the country as no case in recent memory had done. For what lay beneath the tragedy was the horrifying nexus between drug manufacturers, government officials and elected ministers which allows an adulterated drug to be blithely administered in one of the best hospitals of the state with ostensibly the best drug control machinery. The revelations assumed profound gravity as the majority of the drugs registered and produced in the country are from Maharashtra—the functioning of the state's FDA (Food and Drugs Administration) and drug industry affecting the entire country.

THE BACKGROUND

It is important to recapitulate, in brief, the details of the tragedy in order to show how deeply callousness pervades the system. The toxic adulterant administered to patients in the glycerol was the highly concentrated diethylene glycol constituting 18.5 per cent of the drug when even 1 per cent is known to cause damage. The result: death, as rapid necrosis of the kidney tissue led to renal failure.

To start with, the glycerine manufactured by Ganesh Chemicals was a glycerine substitute sold as glycerine to get a higher price. According to ISI standards, industrial grade glycerine should contain 98 per cent glycerine whereas this substitute sold to the two intermediaries contained sorbitol and diethylene glycol in the main. Though marked 'not for medicinal use' and sold as industrial glycerine, the warning was deliberately ignored and the product sold by Kailash and Co. to the repacking firm, Alpana Pharma, with the knowledge that it was to be used medicinally. On its own part, Alpana Pharma supplied the adulterated glycerine to the J.J. Hospital having won the tender by breaking practically every rule in the book.

The open court enquiry featuring stringent cross-examinations and a close investigation of required files spared no one in its rigorous mapping of accountability. During the investigation it became clear that Alpana Pharma's tender to supply the infamous glycerol had been accepted by J.J. Hospital's tender

selection committee for what the Lentin Commission stated as 'extraneous considerations'. The tender, being the fifth lowest, had no obvious advantage of superior quality control. Dr R.D. Kulkarni, Head of J.J. Hospital's pharmacology department, had not only accepted Rs 18,000 from Alpana Pharma but Rs 1 lakh from Hoechst and Rs 1.5 lakhs from the Himalayan Drug House for his research centre on bioavailability studies in exchange for the award of rate contracts.

INEXORABLE NEXUS

The manner in which Alpana Pharma came to acquire a licence is yet another instance of how a body such as the FDA flagrantly flouts the licensing guidelines it itself sets. Due to the clout that its powerful backer Ramanlal Karwa enjoyed in FDA circles, rules were disregarded with impunity. To be eligible to put in a tender, a company had to have a licence for two years. Alpana Pharma had applied within three days of getting a licence. According to government policy, not more than 11 per cent of the total supply of a drug to a government hospital should come from one company. Alpana Pharma supplied nearly 45 per cent of the glycerine. A unit seeking a licence must have an in-house quality control laboratory. Alpana Pharma did not have one, with the FDA's licence being awarded on the understanding that it would be set up



within two months.

The FDA appears to have been run as the personal fiefdom of commissioners and joint commissioners with prosecutions against errant manufacturers deferred and ministerial benedictions sought and received. When the Commission visited the FDA's laboratory in Bombay, it found 20 per cent of the drug samples drawn from the industry by FDA inspectors to be sub-standard. Yet, follow-up action by this so-called watchdog body was non-existent. The Commission's report made this categorical statement on the FDA: 'The entire structure of the FDA, at one time a prestigious body famous in all Asia, has been corroded by rampant and unabashed corruption, deleterious indiscipline, naked favouritism, crude nepotism, gross ministerial interference at every stage and a sense of non-accountability all around.'

The star performer was undoubtedly S.M. Dolas, Deputy Commissioner and licensing authority who straddled the august body like a colossus. Despite the policy of transfers every three

years, Dolas managed to spend twenty of his twenty-eight years in Bombay, thanks to the protection of the former and the then health minister.

CORRUPT LABORATORIES

The working of FDA-approved laboratories like Chem-Med and Apex was yet another scandal that the Commission exposed. The industrial glycerol supplied to J.J. Hospital had been certified as of standard quality by Chem-Med without its conducting the required tests. Because violations in the form of false reports were frequent, the Commission noted: 'Chem Med was found guilty several times of gross irregularities in matters of analysis of drugs and/or issuance of test reports without actually carrying out the tests...'

As mentioned earlier, 20 per cent of the drug samples drawn by the FDA inspectors and tested at its Bombay laboratory were found to be sub-standard. An inquiry into the follow-up action taken on these 522 drugs brought to light the mystery of three missing files, including the one pertaining to Glindia (formerly Glaxo). When a newspaper reporter finally unearthed this latter file, it contained evidence of the FDA's manipulation to pass a drug of sub-standard quality. An analysis report of a multivitamin capsule three days before its expiry showed its B₁₂ content to be 68.66 per cent of the content mentioned on the label. A second test conducted ten days later showed the B₁₂ content to have miraculously risen to 93.07 per cent—and all this around the drug's expiry date. When asked to comment on what he considered unique about the Commission, Justice Lentin said that never in his experience in the High Court and the Civil Court had he come across any case where, barring a few exceptions, witness after witness came determined to suppress the truth and

to put the blame on someone else.

Within J.J. Hospital's own management it was obvious that the buck was being passed from the pharmacist to the medical superintendent to the dean. When seven patients died and a pattern of renal failure was established, the culprit drug was more or less identified. Yet, the toxic glycerol continued to be administered as an anti-oedema agent in the ophthalmology department. An extremely non-specific circular ordering the stoppage of the suspected drug failed to communicate its toxicity or the urgency of the matter. So haphazard was the drug's recall system that thirteen bottles of the contaminated glycerine were returned to the medical stores from one ward only thirteen days after the issuance of the circular. And the date of this delayed withdrawal was fudged in the register to a date ten days earlier and an inflated number of bottles attributed to the store's unused stocks to account for all the bottles of the adulterated batch. The tragedy continued: FDA officials in charge of investigating the case tried to shield the guilty through false reports, the contaminated glycerol and the seizure of its stock forgotten in the process.

In conclusion, it is befitting to quote Justice Lentin's Foreword to the Commission's report: 'The pages describe and illustrate the ugly facets of the human mind and human nature, projecting errors of judgement, misuse of ministerial power and authority, apathy towards human life, corruption, and nexus between unscrupulous licence holders, analytical laboratories, elements in the industries department controlling the award of rate contracts, manufacturers, traders, merchants, suppliers, the FDA and persons holding ministerial ranks. None of this will be palatable in the affected quarters. But that cannot be helped.'

Box 10

DEATH, INTRAVENOUSLY

Death from life-saving intravenous fluids (IV) is a grim irony today. Contamination of this fluid which can occur at any point from manufacturing to transportation, distribution, storage and finally at the hospital itself has only served to underscore the stringent yardsticks necessary for its safety in use. Symptomatic of the extreme unconcern in this very matter of safety is the case of the complaint made by a Delhi stockist to the drug control department in February that he had in his godown no less than 30,000 bottles of lethally contaminated IV fluid which, if used, could have resulted in a virtual holocaust. For more than one year the authorities dragged their feet over the issue until the whole consignment expired in April. The complainant feared that the issue had been deliberately underplayed in the interest of Oslers Pharma Ltd., the manufacturers of the offending batch.

What happens when a contaminated batch is administered to patients unsuspectingly within a hospital? From a study of the cases established to have died due to IV fluid contamination, it appears that while doctors' protests can lead to the recall of the offending batch, albeit inefficiently, seldom is the demand for blacklisting the manufacturers implemented. Delhi's Safdarjung Hospital is a case in point. Two patients died of the contaminated IV fluid—ringer lactate. Batches of this fluid were discreetly withdrawn and any IV fluid-related deaths in the hospital were denied. No post-mortems were done despite the hospital's junior doctors being unconvinced of the official version of these deaths.

Later, two more patients died—one within half an hour of being administered a bottle of ringer lactate and the second immediately after being administered dextrose. Having been

given no other drug, the hospital doctors were convinced that the IV fluids were the killers. That fortnight five other patients admitted to the hospital for minor operations developed serious complications following administration of IV fluids. All five patients, including the two who died, showed identical symptoms: violent shivering, swelling of the face and hypoxic convulsions. The hospital's junior doctors revealed to the press the extent of the contamination as every other person administered an IV fluid developed violent shivering. As another eight patients hung between life and death during the next fortnight, the hospital finally issued circulars to its doctors to stop the use of two particular batches of 5 per cent dextrose and one batch of saline manufactured by Dhavsons Pharmaceuticals.

The following day, a sudden announcement over the hospital's public address system warned the doctors in the wards against using yet another batch of dextrose from this company—an extraordinary warning after a woman given the fluid developed serious complications in the labour room. Even at this stage, there was no confirmation of widespread IV fluid contamination by the hospital authorities and Dhavsons continued its supply.

Later, the hospital officially 'took notice' of just four cases of adverse reactions and froze its stock of 5 per cent dextrose while continuing to use the saline fluid supplied by Dhavsons. The very next week, doctors in the hospital's operation theatre made a shocking discovery: a sealed bottle of saline on the theatre's shelf was found not merely to be contaminated but contained what appeared to be a squashed worm. This bottle could have killed the patient instantly. The Resident Doctors Association's demand to blacklist the company was ignored. Similarly, the

RDA alleged foul play and intentional cover-up by the hospital authorities when an inquiry into the death of two patients due to contaminated ringer lactate was reported as due to 'other reasons'. The Indore-based manufacturers, Prem Pharmaceuticals, stood exonerated.

Perhaps the most serious result of the conscious cover-up bid on the part of hospital authorities, wherever such deaths occur, is that other hospitals cannot be alerted in time to avert certain tragedy. The greatest hurdle in prosecuting those responsible is that it is very difficult to establish a clear-cut case of death caused by contaminated IV fluid that would stand in a court of law. Unless the adverse drug reaction was very closely monitored after the injections were administered, it is difficult to attribute death to a contaminated fluid. The blame could also be shifted to other drugs given along with the IV fluid. One of the customary methods of covering up the incident is to label it 'death due to cardio-respiratory failure'.

Since IV fluids are injected directly into the patient's bloodstream through the veins, they must of necessity be of the highest purity. Even the slightest contamination can cause serious complications as suspended particles or contaminants can block the neurological, renal and cardiac systems. Yet, the vulnerability of this sugar-based solution to ready contamination at every stage is a frightening reality. At the manufacturing stage, particulate matter can enter the fluid through the container, water, air or the garments used by the workmen. A poor quality rubber stopper can react with the fluid, contaminating it.

At the stocking stage, the Indian pharmacopeia clearly mentions that intravenous fluids should be stored in a cool place. The drug control departments have generally ignored this stipulation, certifying any godown fit for IV fluid storage despite scorching summer temperatures.

The greatest danger of contamination occurs during transportation when the glass bottles are highly prone to developing

cracks. Even a hairline crack can lead to the formation of fungus, the solution being a sugar-based one.

At the hospital, the IV fluids pass through the hands of personnel at different levels—the pharmacists who store them, the doctors who oversee their actual infusion and the nurses who ultimately administer these fluids to the patient. Intravenously administered, the non-sterile atmospheric air constantly bubbles into the solution. A drip used for more than eight hours at a stretch could possibly contaminate it—a crucial fact ignored by hospitals which do not prescribe a time limit for the completion of a drip. Even more dangerous is the fact that partially utilised IV bottles are used the next day or even later.

One of the strongest recommendations made by the Eleventh Conference of the Indian Pharmacy Graduate Association was that every district hospital in the country should have a plant to make IV fluids for its own use. Yet, only a few district hospitals have this facility today. Even a prestigious hospital such as the All India Institute of Medical Sciences in Delhi which consumes some 3,000 bottles of IV fluids per day depends solely on small private manufacturers for its requirements. And this despite the fact that it has an excellent plant capable of manufacturing a good part of its daily needs, which at present makes distilled water and mannitol.

In the final analysis, with the Drug Controller of India publicly admitting that he was in no position to guarantee safe drugs as the machinery at his command was incapable of doing so, the onus of ensuring safety falls back on the hospitals—the actual users of these products. In a scenario where the medical personnel are hard put to coping with the number of patients, quality control measures form the exception rather than the rule. Special hospital committees formed following the alarming incidences of deaths due to contamination may carry out random checks for maintaining safety. But seldom will they have the power to blacklist the guilty or alert other hospitals in an honest bid to stem the malady from insidiously spreading.

Box 11

SURA TRAGEDY

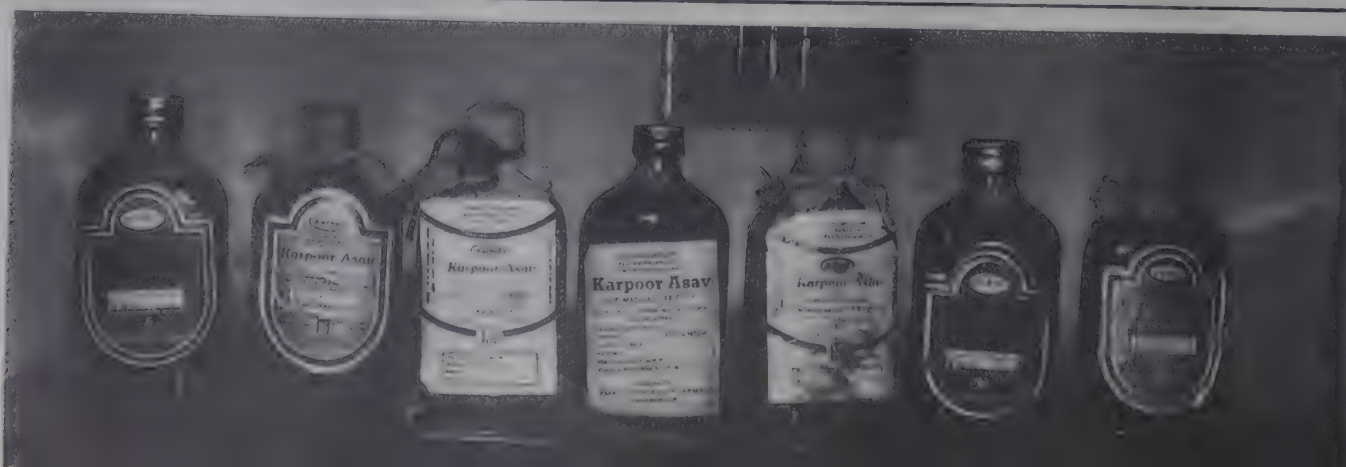
The Sura tragedy which shook the capital has claimed over 200 lives and blinded several others. The tragedy caused unprecedented damage in the poverty-stricken areas of the capital city of Delhi. Heart-wrenching scenes were witnessed at Jehangirpuri, Model Town, Adarsh Nagar and Shalimar Bagh, as relatives and friends of the victims were stricken with grief.

Sura, manufactured by Karnal Pharmacy, Ghaziabad, Uttar Pradesh, had fatal doses of methyl alcohol mixed in it. The cause of the tragedy, methyl alcohol, is a poisonous mixture sold for industrial use without a heavy excise duty. Methanol can be readily tested by a cheap and simple test involving potassium iodide. Methanol poisoning causes blindness and acidosis, and the patient often goes into a coma. It can usually be treated with sodium bicarbonate solution.

As an ayurvedic preparation, small quantities as *sura* are said

to cure diarrhoea and dysentery. This ancient medicine has been misused by profit-minded, unscrupulous manufacturers. The tragedy took its toll and exposed the careless and callous system of government functioning as various government ministries disclaimed responsibility for the tragedy.

The ancient and time-tested system of ayurvedic medicine was misused by greedy business firms who put human lives at stake. Such incidents should be prevented at any cost by formulating and implementing a rational policy for traditional systems of medicine, strict monitoring of quality control, and encouraging social forestry so that medicinal plants are readily available. People from all walks of life—the government, the consumer, legal and ayurvedic experts—should be represented at the policy-making level.



Box 12

CONSUMER PROTECTION ACT (CPA)—1986 DOCTOR vs. PATIENT?

It is for the first time in India that a statute has enabled the consumers of the services of a public sector enterprise—such as electricity supply, telephones, banking—to put the corporation on the dock for a deficiency in services rendered. People welcomed the Act widely and began resorting to the consumer courts for redressal of their grievances under its provisions. Nearly 50,000 cases have already been taken to these courts and it is heartening to note that over 80 per cent of the cases have been decided in favour of the consumers.

A recent ruling in Kerala (*Cosmopolitan Hospital vs. Vasantha Nair*) has brought medical services in the private sector under the ambit of the CPA. The case and the judgement are significant because unlike in the West, doctors are seldom sued for malpractice in India. Until recently a patient with a complaint against a doctor or a hospital could go to the Medical Council of India (although patients rarely did), a quasi-judicial body composed mostly of medical professionals where there is a natural tendency to protect the doctors; or, a patient could go to Court, a procedure which may drag on for years and leave the patient a lot sadder and possibly poorer. Through the CPA the health consumers at last have an alternate forum for complaints but, most important, since a time limit has been fixed for disposal of cases, justice is quick and free as there is no advocate's fee, Court or stamp fee, and they are awarded compensation for claims upheld.

The consumer grievance redressal commissions, quasi-judicial bodies, are headed by a retired judge of the Supreme Court at the national level, a High Court judge at the state level and a district judge at the district level. The accused party is given five weeks to reply to the charges, failing which hearings are held on a daily basis allowing for quick disposal of complaints.

This faced opposition from the medical community and its representative Indian Medical Association (IMA) which contends that medical service is a 'personal service' and medical practitioners are governed only by the Medical Council Act of 1956. The IMA claims that nowhere does this Act make any reference to medical professionals or to medical services. They strongly state that the relationship between the doctor and his patient is of a very personal nature and not that of a seller and buyer. But the CPA points out that medical treatment involves a contract 'for' personal services not 'of' personal services. It is an offer of technical (medical) services for a fee. They insist that medical services naturally come under the ambit of the CPA.

Another significant fact is that no person representing the medical profession or who has the knowledge, expertise and experience in dealing with problems relating to medicine and health, finds a place in these redressal forums. According to the IMA the medical professionals are governed by the Hippocratic Oath and medical ethics. They also have a forum, the Indian Medical Council, which could be strengthened instead of bringing medical and health care services under consumer protection laws, which they feel will seriously erode medical ethics and the doctor-patient relationship, and instead bring in its wake many problems and a host of new issues adversely affecting the medical and health care delivery system.

While consumer courts will greatly help reduce the odds being so heavily stacked against the Indian health consumer, such protection could also lead to the pendulum swinging

completely the other way. The medical professionals are bound to shy away from those cases in which they see the potentiality of such a litigation. Doctors may resort to recommending that their patients get all manner of investigations done which might not have been strictly necessary, thereby imposing higher cost burdens on the patient. Afraid of being sued, many private doctors are refusing to issue receipts for payments made for their services, since a receipt is of paramount importance while approaching consumer courts. Many medico-legal cases such as accidents which need emergency care could go neglected in the fear that if anything were to go wrong action would be taken against the doctor.

The doctors may also take higher insurance premiums to provide for contingencies. The cost of this too will have to be borne by the patient in the form of higher fees for services rendered. This will adversely affect the poor sections of society.

There are many questions which are left unanswered in the Act. Who will judge whether the doctor was negligent or whether the complications resulted from secondary factors which are beyond the doctor's control? For example, an infection acquired from the hospital or a visitor, because of sub-standard drugs, due to a patient's previous medication, or even on account of the patient's debility. Who will decide the parameters of negligence and quantify the cost of each factor? How is one to decide the compensation for pain or for mental agony?

The main fear amongst doctors is that as it is easier to complain to a consumer court than to a civil court, they are more vulnerable to blackmail, extortion and defamation by patients who have no genuine grievance but who might be instigated to file false, frivolous and vexatious complaints by 'vested interests'.

There is definitely a serious cause for concern with regard to consumer redressal forums. Public-minded, competent people with integrity are no cause for alarm but politicisation and infiltration of vested interests should be avoided. These forums could become a tool for exploitation against the medical profession. It is most essential that consumer organisations, while upholding the rights of consumers, should strongly condemn any frivolous and malicious complaints against the medical practitioners. A recommendation has been made for the incorporation of such a provision in the Act, whereby strong action can be taken against the complainant if the complaint is found to be malicious.

There is this scope for misuse from both sides. People should be prudent in taking issues to the consumer forums. Complaints should be properly screened before the consumer courts take up cases and there should be accountability on the part of the medical profession. It is clear that the patient is a consumer and the doctor or hospital is a provider of services. Hence, society does expect a certain degree of efficiency and certain norms of service to be established and maintained. There is a strong need to strengthen and publicise the role of Indian medical councils. Consumer courts should include competent medical professionals. Medico-legal forums and Indian Penal Codes which deal with medical cases should be streamlined, strengthened and simplified. There are enough rules and regulations for the patients but power and money always hindered their path to justice. The CPA is just another tool to be used by the common man in his search for justice.

INVENTING AN AILMENT FOR A FEE—BY A STATESMAN TEAM OF REPORTERS

The Government declared 1 July as 'Doctor's Day'. The entire country will observe the day, and doctors have declared their intention to re-dedicate themselves to their commitment to society. As a barometer of their professional commitment, four reporters of this newspaper went to doctors in different parts of the city, complaining of a cold. Only one of them actually had it. The other three were pretending. In not one case did the doctors chase the reporters away. Most made cursory examinations, wrote out long prescriptions for an ailment which has no medicinal cure, and pocketed the fees.

In the course of the survey, till then hale and hearty reporters discovered that some had frontal sinusitis, some had plain sinusitis, and one was even called for a 'review' after three days.

Science does not permit it, commonsense belies it, and a study of medicine would certainly oppose it, but Dr K. of K.'s clinic in a south Delhi colony appeared to have divine sight. For, after being informed of the complaint, he did not bother to examine the patient. Without checking the patient's pulse or taking his temperature, he informed the reporter that he had a slight fever, and after inquiring whether the patient was allergic to medicines in any way, prescribed Amoxycillin, Radibex-C and Recofast for three days, and asked him to come back after three days. That was for Rs 15.

In Hospital M. of Green Park Extension, Dr R.'s examination was a little more thorough. It lasted exactly twenty seconds, during which he pressed the patient's nose and forehead, and the conclusion was that the patient was afflicted with frontal sinusitis. The medicines prescribed were Penclox, Nortex, Nasivion drops and Brufen for five days. All this for Rs 50.

At S.'s clinic in Khan Market, Dr S. made a two-minute examination. The result was a temperature of 99 degrees, cough and cold. The remedy was tablets for pain and fever, though the patient had not complained of any pain. Rs 30 was paid there.

At Dr M.'s in Connaught Place, the examination was less than cursory, but the remedy only too ready. Contact cc and Celin for five days, the price of the knowledge here being Rs 30. At S. Nursing Home in Karol Bagh, the examination was thorough and a number of questions asked. However, despite the investigative genius, the doctor failed to diagnose that the patient was in fact quite well, and instead condemned the patient to a bout of sinusitis. Trexyl, Cobedex and Ampicillin were the answers to her problem, she was told, and also that medicines were indispensable for her ailment.

Dr S. of east Delhi merely heard the patient out, asked for the customary opening of the mouth, without actually bothering to examine the same, and proceeded to write out the medication—Nasivion and Celestamine. Here the price was only Rs 15.

At the end of the day the reporters at least had a long list of medicines, some of which one had never heard of before—Recofast, Brufen, Vitamin C, Doxy, Ampicillin, Trexyl, Cobedex, Actifed, Crocin, Amoxycillin, Radibex-C, Recofast, Penclox, Nortex, Brufen—all this for a common cold which has no remedy. A senior doctor spoken to confirmed this, saying that the only medicines to be recommended were Vitamins B and C, and antibiotics only in the case of throat infection. However, prescribing long lists of antibiotics seems to be only the secondary factor in a situation where the doctors are not even able to diagnose the ailment, or lack of it, and some do not even try.

The patients, with the same imaginary complaint, visited doctors who would presumably have followed the same course of medication. However, the diagnosis was different in each case, and the medicines prescribed were also different.

However, the situation is certainly not without its brighter side. For, as long as we have support from the doctors dedicated to the service of society, pharmaceutical companies will definitely never be out of business!



THE RURAL HEALTH CARE SYSTEM IN CHINA

'Health for all by the year 2000' was the global goal proposed by the WHO in 1977. In October 1988, Premier Li Peng stated that it was one of the components of the overall strategy for socio-economic development in China. According to the Fourth Census of China, the population of the country is now over 1,160 million, of which the rural population is over 900 million. It is obvious that the focus of the strategy for health care should be on rural areas. It has been shown that the development of medical and health services in any country is linked to the country's political and socio-economic development.

CHINA'S SOCIO-ECONOMIC DEVELOPMENT AND ITS TARGETS

Before 1949, China was a poor and backward country. Under the guidance of the Communist Party of China (CPC) and the Chinese government, it has achieved tremendous success in the development of the national economy.

In 1979, Deng Xiao Ping laid down a three-stage process for China's future modernisation. The first stage (1981-1990) aimed to double the 1980 GNP and guarantee the people adequate food, clothing and housing. The second stage (1991-1995) aims to quadruple the 1980 GNP and enable the people to lead a relatively comfortable life. The target of the third stage (1996-2000) is to reach the economic level (in terms of average per capita income) of countries which fall between the developed and the developing.

THE POLITICAL INSTITUTION AND STRUCTURE

The system of multi-party cooperation and political consultation is China's basic political system, which has been shaped and developed through the long period of revolution and construction. Chinese democratic parties have actively cooperated with the CPC, participated in governmental affairs and contributed greatly to the country's modernisation. The Chinese People's Political Consultative Conference (CPPCC) is a political consultative organisation and comprises delegates from the CPC, various democratic parties, non-party democratic circles, people's organisations, different nationalities and all walks of life. National and local representatives of the CPPCC meet regularly to discuss state policies, important local affairs, implementation of policies, laws and decrees and other pressing problems in people's lives. They offer criticisms and suggestions and propose methods for solving problems.

The People's Congress System is another political structure in China, and the National People's Congress (NPC) is the highest organ of state power. The functions and powers of the People's Congress include legislation, supervision and decision-making power in select matters and the right to appoint and remove personnel. This system is different from the Western political system in two ways: (a) deputies of the People's Congress do not resign from their professional positions. Therefore, they keep in close touch with the masses and are under the supervision of the voters or voting units; (b) the Chinese People's Congress is a one-chamber system, unlike the Western parliamentary system established under the principle of three organs exercising their own functions and powers independently.

THE RURAL MEDICAL AND HEALTH SYSTEM IN CHINA

Since the founding of the People's Republic of China, the emphasis has been on gearing health work to the needs of the workers, peasants and soldiers; putting prevention before cure; achieving unity between the Chinese and Western systems of

medicine and combining health work with mass campaigns. New China has worked hard and made remarkable achievements in the prevention of diseases, patient care, health care, medical education and research.

Table 1

	1949	1990
Medical and health institutions	3670	209000
Hospital beds	80000	2624000
Medical and health workers	990000	4906000
Average life expectancy	35	69
Infant mortality rate (IMR)	20%	5.1%
Maternal mortality rate (MMR)	150/10000	9.4/10000

Rampant infectious diseases such as cholera, plague, small pox, relapsing fever, typhus and kala-azar have been eliminated, while the spread of such diseases as malaria, snail fever, goitre, keshen and kaschin-beck have been brought under control.

In the 1960s, a cooperative medical and health care system was established in China to guarantee the health of farmers. Medical workers, called 'barefoot doctors', trained by the local government, worked at their regular jobs of operating the village clinics. But after rural economic reforms brought about the household contract responsibility system in the 1980s, the commune and most of the village clinics were disorganised, as a result of which farmers had to pay their own medical expenses and their problems rose. Today, China has re-established the cooperative medical and health system, and established a rural medical insurance system. By 1990, the village clinics (or health stations) had been set up in 87 per cent of the villages. Now, a three-tier medical and health network has been established in the rural areas—county hospitals, township hospitals and village clinics (or health stations). The county hospitals are the professional centre of the three-tier network; the township hospitals serve as the link between the upper and lower levels of the network. Their tasks include providing preventive and curative care and health services, directing and training village health workers, and taking responsibility for administration in local health development. The village clinics (health stations) are the grass-roots units of the network and are in charge of the organisation of patriotic health activities; implementation of the immunisation programme, control of infectious diseases, prevention and treatment of common and endemic diseases, family planning services and MCH care, and publicising information regarding hygiene.

IMPLEMENTATION OF HEALTH FOR ALL IN CHINA

1. In 1990, the Ministry of Public Health, the National Committee of Planning, the Ministry of Agriculture, the Bureau of Environmental Protection, and the Committee of Patriotic Health Movement of China cooperated in establishing a programme that has become a component of central and local governance for socio-economic development, and is an objective management tool of the government at different levels. The minimal requirements of Health for All by 2000 in the rural areas of China are shown in Table 2.

Table 2
Minimal Requirements for Health for All by the Year 2000
(County as a unit)

HFA required in different economy areas
 Indicator of success in PHC

	Poor	Well-off	Wealthy
	100	100	100
1. PHC as a component of the government's project for socio-economic development at town and county levels (%)			
2. Percentage of annual support for health service from town and county's budget (%)	8	8	8
3. Popularisation rate of health education (%)	50	80	90
4a. Coverage rate of village-owned health stations (%)	90	100	100
4b. Percentage of the first class village-owned health stations in total number of village-owned health stations (%)	30	70	90
5. Coverage rate of health care financed by community and collective system (%)	50	60	60
6. Coverage rate of safe drinking water programme (%)	60	80	90
7. Coverage rate of sanitary toilet (%)	35	70	80
8. Rate of meeting food hygiene standards (%)	80	85	85
9. Decreasing proportion of infant mortality every 5 years (%)	20	8	5
10. Decrease of maternal mortality every 5 years (%)	30	20	15
11. Immunisation rate of one single vaccine consisting of 4 kinds of vaccines (%)	85	90	95
12. Decreasing rate of morbidity of reportable infectious diseases every 5 years (%)	15	10	10
Special indicators in endemic disease areas: decreasing rate of endemic diseases every 5 years (%)	10	5	5

2. The stages of implementation:

Stage I (1981-1990) is the stage of programme design and of carrying out a pilot study based on it. The main targets of this stage are: (a) to conduct a variety of educational projects of primary health care, which include training courses for administrative cadres, and professional and primary health workers; (b) to organise and perfect the three levels of the health care system in order to initiate an organisational prelude to implement primary health care; (c) to conduct a field investigation based on the principles and criteria of minimal requirements for each programme, and to work out the predictive value and the related approaches towards implementation; and (d) to choose appropriate counties as demonstration points to set up the tentative models reflecting common demands. The aim is to strive for 10 per cent of the counties in the country to attain the minimum requirements of the programme.

Stage II (1991-1995) is the stage of all-out expansion under the

leadership of town and county governments, the main focus of which is expediting close cooperation between the relevant governmental agencies and people's participation in obtaining the goal of Health for All by 2000. At least 50 per cent of the counties in each province, autonomous region and municipality should reach the standards of the minimal requirements.

Stage III (1996-2000) is that of rapid development to fully meet the criteria of the goal. The main tasks are: (a) to improve the socio-economic conditions of the country in order that the necessary infrastructure for primary health care can be developed more rapidly, completely and perfectly. This way the minimal requirements of primary health care will extend to the remaining 50 per cent; (b) based on the new approach, the county which has reached the minimum requirements must strive to reach a new and higher level; and (c) a nation-wide evaluation would be made, followed by on-site inspection.

In order to attain the goal of Health for All by 2000, China has to face a few problems.

(1) *Investment*: China is a developing country with a population of 900 million in the countryside. Establishing primary health care in the rural areas requires considerable financial input. It is almost impossible to provide free medical care to the rural population. Instead of leaving everything to the government, a new system which combines the efforts of government organisations, collective and cooperative enterprises, associations and individuals has begun to operate. Further, China's international relations with the WHO, UNICEF, UNFPA, the World Bank, and other international institutions will also help in realising health for all.

(2) *Population*: China has a large population and the growth rate over the past few years has been 16 million annually, equivalent to the population of a medium-sized country. As a result, about one-fourth of the increased national income is consumed by the growth in population and proves to be a heavy burden on the socio-economic development of the country. The population growth rate must be kept below 12.5 per cent over the next ten years. This is why family planning is one of the basic national policies and will remain so.

(3) *Personnel Training*: At the end of 1989, there were more than 39,00,000 trained rural health personnel, of whom 17,00,000 or more were working at the town and county levels, and 1,20,000 or more in the villages. This is not sufficient for the consolidation and development of the three-tier medical and health care system in the rural areas. The current medical education system is now undergoing a change in China. Briefly, it includes: (a) establishing a complete and continuous medical education system—a process of learning throughout life—i.e., at the undergraduate and post-graduate (including the residency training programme) levels; (b) implementing programmes of three, five and seven years for higher medical education and a three-year programme for the middle level of medical education. The three-year programmes in both levels are mainly responsible for training doctors to operate from rural areas; (c) modifying the curriculum, emphasising community health and preventive medicine instead of the present hospital-based training and curative medicine; active learning, including self-directed and independent study as well as tutorial methods, and ethical education; and (d) implementing an advanced training programme for the medical and health workers in a three-tier medical and health care network.

Thus, to implement Health for All in China by the year 2000 it is necessary to involve governmental leadership, multi-sectoral participation at different levels, and the enthusiasm of the people. This is the only means of resolving the main problems facing China's rural areas.

The Voluntary Sector in Health Care: Need for a New Paradigm

Health care in India has a long tradition of voluntarism. For centuries, traditional healers have taken care of the health needs of their own community as a part of their social responsibility by using the knowledge passed on to succeeding generations regarding the medicinal value of herbs and plants locally available. This tradition still continues, particularly in the tribal pockets of the country.

Unfortunately, the institutionalised voluntarism that evolved during the colonial era was completely dominated by the thinking of the colonisers who completely ignored the rich traditional systems of health care in India. This was partly due to the fact that much of this effort grew out of the activities of Christian missionaries, most of whom came from abroad. The Indian elite, who had been partially involved in the voluntary effort

during that phase, also firmly believed in the supremacy of everything Western. Consequently, there was little possibility of evolving a health system which assimilated the best of both schools. Perhaps the major exception was Mahatma Gandhi's continuous effort to popularise naturopathy, yoga and vegetarianism through the *ashrams* he had set up in various parts of the country.

After Independence, till the mid-1960s, voluntary effort in health care was again limited to hospital-based health care by rich family charities or religious institutions. In the mid-1960s, the effectiveness of the Western curative model of health care in the less developed countries came under serious attack by development planners. The Chinese experience of decentralised health care through effective use of motivated health cadres at the grass-roots level also received widespread attention. Out of this rethinking grew various models of community health programmes which emphasised decentralised curative services where trained village level workers play a key role. Much more importance was given to preventive aspects where the community plays a more effective part in their *own* health care.



Unfortunately, this refreshing trend too ignored missed the important role of traditional healers and *dais* in health care, and very little attention was paid to the Indian systems of medicine.

The voluntary health effort as it exists today can be broadly classified as follows:

- **Specialised Community Health Programmes:** Many of them go a little beyond health by running income-generation schemes for the poorer communities so that they can meet their basic nutritional needs
- **Integrated Development Programmes:** In these programmes, health is a part of integrated development activities. Consequently, their emphasis on health care may not be as systematic or as effective as that of the previous group but the long-term impact of their work on health and the development of the community is significant
- **Health Care for Special Groups of People:** This includes education, rehabilitation and care of the handicapped. These specialised agencies are playing an important role, keeping in view the fact that hardly any government infrastructure exists in this sector of health care
- **Government NGOs:** These groups are NGOs which play the role of implementing government programmes like family planning and integrated child development services. These bodies are marginally more efficient than the government system but their overall approach is the same
- **Health Work Sponsored by Rotary Clubs, Lions Clubs and Chambers of Commerce:** They usually concentrate on eye camps, conducting cataract operations in the rural areas on a large scale with the help of various specialists
- **Health Researchers and Activists:** The efforts of these groups are usually directed towards writing occasional papers, organising meetings on conceptual aspects of health care and critiquing government policy through their journals which usually have limited circulation
- **Campaign Groups:** These groups are working on specific health issues, such as a rational drug policy and amniocentesis, among others

According to a rough estimate, more than 7,000 voluntary organisations are working in the above areas of health care throughout the country. Voluntary agencies have played a significant role in developing alternative 'models', as well as providing low-cost and effective health services in many parts of the country.

They have been able to develop village-based health cadres, educational materials and appropriate technology. They also help in filling the critical gaps that exist in government health services.

However, these 'models' are far from perfect; they do not possess the conditions of replicability as does the government sector. On the other hand, the vastness and regional diversities that characterise India also make it extremely problematic to think of replication or standardisation of 'models'. In fact, it is being increasingly acknowledged that the term 'model' itself when applied to people's health care systems is suspect. There can be no prototype. An appropriate system should evolve from the people themselves. Just as health conditions emerge from the community's interaction with its surroundings, it is the people's struggle through time that determines the nature of the services that they receive.

It is also recognised that the task of formulating a 'model' or an appropriate system of health care becomes a highly challenging managerial, sociological, technological, epidemiological and political task which, if simplified to the current level of health planning, will produce imperfect results. After all, the difference between the NGO and the government sectors is very subtle in this regard; they have preconceived ideas, a lot of money and little knowledge of the dynamics of community health. Genuine 'models' of community-based health care are hard to find.

The concept of 'participation', currently in vogue, is another problem. In the case of the establishment, for whom anything referring to empowerment of the people is hard to accept, the term has come to mean compliance, contribution or collaboration. In its true sense, participation leading to empowerment stands as a challenge to the interests of the establishment.

The effect of community health experiments in shaping government policy with regard to health care has been limited, although a few of the concepts have been incorporated in government programmes. Some representatives of voluntary agencies have been absorbed in the government's policy-making bodies. This is a critical area totally neglected by voluntary agencies. All voluntary initiatives are not necessarily in the area of extreme needs. One finds very limited voluntary initiatives in the BIMARU states (Bihar, Madhya Pradesh, Rajasthan, Uttar Pradesh and Andhra Pradesh) as compared to the better-off states like Kerala or Maharashtra. Even in Kerala, they are not necessarily in the least developed parts of the Malabar coast or the highlands.

Hardly any effort has been made to form public opinion or mass organisations like trade unions, people's movements or political bodies to generate a demand for more appropriate and effective health services. In spite of these limitations, however, the contributions of the voluntary health organisations in providing appropriate health services in needy areas is highly appreciable.

The Kerala Sastra Sahitya Parisad is one of the few NGOs which has attempted to demystify medicine. Special campaigns on the drug policy, anti-smoking and amniocentesis have had some limited impact, both at the policy level as well as in educating the consumers. The KSSP emphasises that the greatest health problem is poverty and that the majority of ailments arise from the inadequacy of proper food and an unhealthy living environment. The KSSP has organised numerous health camps, published several documents on people's health, and are in constant touch with various organisations like the Voluntary Health Association of India and Medico Friends Circle. The KSSP believes that health care is a basic right of every citizen and an effective health care delivery system should work towards keeping the entire population physically and mentally healthy. It warns people against the modern health care systems controlled by multinational drug companies, stressing instead the wealth of knowledge that exists in traditional systems of medicine (see also Box 9 in the chapter on Health Education in this volume).

The health groups are also divided on ideological grounds—foreign or locally funded, those following traditional or modern medicine, etc. Most of these groups are dominated by a group of elite who meet nationally or internationally to express concern and share information; however, they do not have any mechanism by which to transfer this information to either the common people or social activists who might be able to use this in their struggle. To this elite, even paramedics and village health workers are mere functionaries and not agents of change.

Given this situation, health organisations in the voluntary sector need to focus on the following issues, apart from their current activities:

- They must join in the broader struggle for social justice with other progressive forces
- They should work on critical issues of socio-economic justice in the areas where they operate
- They must understand the macro level health plan and work towards a viable alternative health strategy



COMPREHENSIVE RURAL HEALTH PROJECT IN JAMKHED (INDIA)

Rural India does not have adequate health care. The poor health conditions get aggravated due to the perpetuating problems related to lack of antenatal care of both the child and mother, unsafe drinking water, unchecked population growth and disparity in availability of health care.

The recognition of the fact that the repetitive occurrence of preventable illnesses cannot be done away with by isolating the patients from their community and the environment in which they live, inspired Dr Arole to draw up a system that would cover the entire rural population in a given area and meet the basic minimum health needs of the community. The plans for providing medical care for the rural population were drawn up at the Johns Hopkins School of Public Health. The criteria were:

(a) To motivate local communities to participate in decision-making and health programmes, so that they own the programme in their village

(b) To plan the programme at the grass-roots level and develop a referral system to suit local conditions

(c) To use local resources to deal with health care

(d) To integrate promotional, preventive and curative care

The plan took the shape of a project with the appreciation and financial assistance of the Christian Medical Commission, religious and secular agencies and the concerned government officials.

THE PROJECT AREA

Jamkhed, 420 km from Bombay in Ahmednagar district in Maharashtra state, was selected as the project area. Jamkhed allows free communication between castes but bars intercaste marriages. Agriculture, dependent on rainfall, is the main source of livelihood. At the start of the project, 66 per cent cultivated their own land and 22 per cent were farm labourers. Eighty-eight per cent of the land was under cereals and only 1 per cent under cash crops, like sugarcane and cotton. Almost all the villages had a primary school but none had colleges of higher education. The 1961 Census showed 37 per cent literacy among men and 10 per cent among females. For day to day administration people elect a head for the village council.

In 1961, Jamkhed (in Kharda block) had population of 73,153, which has been increasing subsequently. The primary health centre staff of thirty-five to forty people included physicians, ANMs and basic health workers. Each ANM looked after 10,000 people. The leprosy control unit covered four community development blocks to detect and treat leprosy. CRHP, Jamkhed, covered part of this community development block and served thirty villages, wherein all ayurvedic and modern medicine practitioners were male and practised curative medicine free of charge. A small drug store provided ayurvedic drugs. At that time patients needing diagnostic investigations, emergency care or hospitalisation had to be referred to a hospital 47 miles away at the district headquarters. Although all thirty villages were accessible by a direct road from Jamkhed, the slow and expensive transport (bus and trains) and the associated loss of wages made most patients travel only reluctantly to see healers.

Malnutrition, diarrhoea and fever among children was common. The infant mortality rate was recorded to be 80/1,000 and 150/1,000 live births in remote areas. This was because most children had received the small pox vaccine but not the triple antigen or poliomyelitis vaccines. Mothers too were neglected during pregnancy and childbirth. Among family planning methods, only vasectomy was accepted by five to ten couples

(women were sterilised in district hospitals), whereas oral contraceptives and tubectomy were not in use.

THE METHODS ADOPTED

The thorough assessment of the situation led the planners to form a suitable strategy and approach.

Jamkhed, being a central village of the area with a weekly market, government office, high school and bus connection served as a good catchment area. After a series of meetings with community leaders, they welcomed the initiators, realising the wealth of the curative facilities so close to them. But the total health programme needed the people's participation. Therefore, an advisory committee was formed comprising local leaders of various castes and political party members who guided us in the health care programme and liaised between the village and the project. This helped to formulate broad policies and decide how to meet community needs. In the meantime, the project's credibility was established, twenty people were recruited to work in an old veterinary dispensary renovated to form a simple clinic. The community extended help in the form of providing volunteers to supervise the construction of the building on the land donated by farmers, provided facilities for the nurses and VHWs to stay in the village, assisted health personnel in the identification of leaders and health cases, repaired roads and donated blood.

Initially 200 to 250 patients visited the clinic daily in 1970. Most of them were surgical and obstetric emergencies, though equal emphasis was laid on prevention and health promotion.

The project in Jamkhed began during a period of drought. The intimate contacts with the village council members and leaders indicated that the community's priorities were food and water, not health. Lack of food in the area led the volunteers to organise a 'community kitchen' and maintain records, thereby translating the felt need for food into a nutrition programme. Since local resources were necessary, the community organised the digging of wells in the farmers' fields. Whoever benefited donated land to grow food for the programme. Donors were approached to buy farm machines (tractors), now in use. The crops grown were shared by the owner and the community.

Medical firms, Maharashtrians settled abroad and other agencies helped financially to dig tubewells 180 feet deep fitted with handpumps. This provided safe drinking water, thus minimising the incidence of water-borne diseases. Interested agencies helped to deepen the existing wells by blasting and supplied good seeds and fertilisers for the nutrition programme. A small poultry, a dairy farm meets the nutritional needs of the patients in the centre.

STAFF RECRUITMENT AND TRAINING

As the work progressed, all identified indigenous practitioners were contacted. Two ayurvedic physicians with knowledge of modern medicine were recruited with the idea of providing wide-based care to the people. A B.Sc. nurse with training in public health, four trained nurses, six ANMs and two leprosy technicians were provided in-service training to improve their skills for their role in the project. Each staff member knew the main object of the project—to meet the basic health needs of the population by providing essential services like ante- and post-natal care, performing deliveries, family planning activities, the care of children and mothers through immunisation, improved nutrition, diagnosis and treatment of simple and

chronic illnesses, provision of safe drinking water and hospital care for medical, surgical and obstetric emergencies.

The community was involved to reach the scattered communities in different villages and it became necessary to involve all the health workers and indigenous practitioners to utilise the existing staff and create a new cadre of health workers.

THE HEALTH TEAM APPROACH

The health team of physician, nurse supervisor, social worker, and ANM worked and were trained together as each member had his or her role in the delivery of health services. The team members at the lower rung of the ladder are especially trained as they are more readily accepted by the rural people. There were two mobile health teams which did intensive work in one village and follow-up in a second. They covered four villages daily and returned to the centre after four hours of work. In-service training was given once a week and evaluation of the health team and its difficulties were discussed at weekly meetings.

The nurse is the leader of the team, who makes house-to-house surveys to identify targets for health care. Chronic patients are brought to the main centre. The nurse supervises the team members, helps the VHWs, supervises the nutrition programme and follows up pregnant and lactating mothers, and women using family planning methods.

The paramedical workers, by clinical and simple laboratory methods, can diagnose leprosy, tuberculosis and malaria. The social workers of the community receive suggestions from the villagers and communicate problems to the centre. The physician acts as a consultant to the nurses and paramedical workers, and field trainer to the staff and VHW.

Mass programmes like immunisation and school health examination are organised periodically. The mobile health team cuts down the transportation cost and motivates the people to seek medical advice early, before the illness becomes serious, which can also be managed with inexpensive drugs by simply trained medical workers. The follow-up of chronic patients and health education is carried out during the team visit. Hence, the use of the mobile team saves both the institution's and the patients' cost.

VILLAGE HEALTH WORKER (VHW)

The VHW is a necessary component of the health care system. Since she is chosen from the community and trained, health promotion is easily achieved. Her incentive is not money but job satisfaction, her services are not expensive and are within the reach of the community. A VHW, being a middle-aged woman is largely concerned with women—population control, maternal and child health. Though illiterate, they are active, well-motivated and respected members of the community. These VHWs are also provided in-service training at the main health centre on health priorities of the project. The two-day training is done with the help of flash cards, flannel graphs and audio-visual aids, in the form of discussions, demonstrations and formal lectures. However, she is further trained in the field by the mobile health team.

A VHW pays special attention to underweight and malnourished children. They are screened for simple ailments such as sore eyes and fever, and are weighed. Mothers are provided group health education and immunisation schedules are arranged.

Pregnant mothers are advised and given simple iron and vitamin pills and immunisation against tetanus. The relatives conducting deliveries are provided sterile razor blades, and bandages to ensure the principles of hygiene. Women in the childbearing age are identified and motivated to undergo sterilisation. The VHW also collects vital statistics (births and

deaths) and records her daily routine with the help of which she suggests ideas for producing better teaching aids suited to local customs and traditions. A health promotion stall is constructed at marketplaces and fairs where the VHW arranges puppet shows and mobilises the masses for health education.

THE MAIN HEALTH CENTRE

The main health centre located at Jamkhed to support services in the villages has an out-patient clinic, a clinical laboratory and diagnostic facilities, in-patient facilities for thirty people, and facilities for deliveries and sterilisations. For surgery or expert medical care they are referred to Ahmednagar.

When the project is in action various activities are carried out: initial check-up and immunisation of pregnant mothers, advise on family planning, ante- and post-natal care, physicians use a situation to train the staff, there is weekly care of leprosy and tuberculosis patients, physicians are busy with referrals from the periphery at the main health centre, etc. Curative care is available at all times and the physicians are equipped to deal with common emergencies.

Besides, village leaders of two villages share tea at an informal meeting called by the initiators. Similarly, the advisory committee meets informally once a month to discuss mutual interests, seek solutions, exchange opinions and provide suggestions to improve the programme.

THE PROGRESS MADE

The project has penetrated all thirty villages, of which twenty are caring for 250 children whose health condition has significantly improved through the community kitchen. All villages get safe drinking water, women believe in child spacing, leprosy patients have begun to work, there is a decrease in cases of dehydration and severe malnutrition among children. The provision of supplementary food for under-5s and mothers every morning and care of 720 patients every year mark the progress.

FINANCIAL ASPECT

The budget is in accordance with the programme. Curative care accounts for 30 per cent, community health programmes for 60 per cent, and administration for 10 per cent of the budget. Foreign donations for recurring expenses have gradually declined from 50 to 30 per cent, 66 per cent of the running expenses are met from patients' fees. The government provides 4 per cent of the budget for family planning activities and cost of vaccines and drugs.

THE PRESENT POSITION

The staff members have completely identified with the project, which is now training health personnel engaged in rural practice in new skills. Their concern and compassion for the underprivileged, a willingness to identify with the masses and the ability to withstand all inconveniences are a significant contribution to the project.

Mobilising the community at the grass-roots level and activating them to identify their own needs is the solid base of the project.

The project has also coordinated the services of agencies involved in development schemes of agriculture and water development by supplying them good seeds and fertilisers and developing water resources. The multi-sectoral approach has given the project an opportunity to identify the community's priorities as their own.

USE OF INCOME FROM CURATIVE SERVICES

The results of community health care are not so obvious. At the same time delivery of health care is expensive. Therefore,

in the absence of help from the government, income from curative services is used for community-oriented programmes.

Since the inception of the project, the role of the physician has changed from a conventional one—an individual providing care for an individual—to one of captain of a health team. Since modern medical graduates do not like serving in rural areas, in-

digenous practitioners, trusted by the community, are involved to implement health programmes.

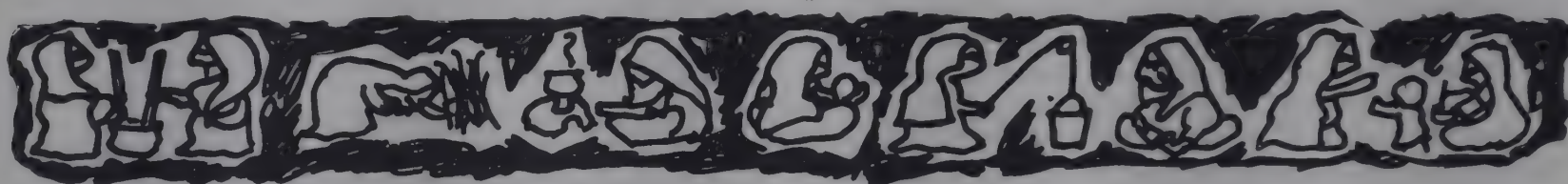
Thus, the lesson learnt from this project is that the compassion for the individual patient is an important component of medical practice and needs to be extended to communities in areas not ordinarily covered by health professionals.

- They should build up general awareness on rational and holistic health care among the public at large so that a conducive atmosphere can be created for a shift in policy.
- They must help to broaden the horizon of health functionaries on development issues so that they can fulfil their public responsibilities effectively

This major shift of focus will put them in a position of conflict with the state, medical establishment and medical industries. Given the background, origin and mandate of most health organisations, how many of them will be able to stand up to it?

Recommendations

The health services and medical profession in India is in the throes of a serious crisis. This is evident from the fact that news of epidemics have become a part of the regular headlines of newspapers. The response of the system to these epidemics is usually callous if not an exercise in public relations. A case in point was the response of the system to the cholera epidemic in Delhi in 1988. If the situation is so pathetic 10 km from the nerve centre of the Health Ministry of the country, one can imagine how frightening must be the situation in the remote rural pockets.



Box 16

SEWA RURAL

SEWA Rural, which aimed to provide assistance to the socio-economically depressed population of Jagadia block, was set up in May 1980 in Bharuch district in Gujarat. As Jagadia is a tribal agricultural area with 60 per cent of its population being landless labourers, it was realised that meaningful development is not possible until the rural masses are properly fed, educated and cared for. Hence, SEWA Rural committed itself to activities in the field of health, agriculture, self-employment and character-building education, by carrying out a tribal health and socio-economic transformation in forty-one villages comprising a population of 45,000 spread over a radius of 30 miles. The funding group was sensitive to the need to involve people in the development of their own area and not to impose outside will on the community being served. Hence, no one is considered a peripheral level worker. SEWA is attuned to participative management and horizontal leadership with a trusting support between management and functionary.

Systematic efforts are made to identify the staff with the organisation and its clientele and to motivate them to establish support, which characterises staff-agency and agency-client relationships at SEWA.

A special feature of SEWA Rural is the harmony and adjustments made within the project and between the project and the community. This is achieved through a continuous process of dialogue, frank group self-appraisal and equal sharing of responsibilities and rewards.

The people of the community prove their identification with the project by generously contributing small amounts for the annual fund-raising campaigns.

SEWA's coordination with the government could help avoid confusion and duplication in the dispersal of basic health services in the rural areas, which is a state responsibility.

The Community Health Project (CHP) of SEWA Rural was launched in the record year of its operation. A basic shift from the traditional hospital-based curative services to village-based community health services was made with the goal of a comprehensive health service including preventive and promotive care. The Kasturba Maternity Home run by a local charitable trust in Thergadia and restructured as a curative care centre was utilised to save time and conserve limited resources. Its referral linkages helped SEWA Rural establish its presence and credibility. Payment is made by those who can afford to, and this has added a new dimension to the Indian health scene. The state government placed village level health functionaries in the project area under its technical and administrative control and provided them SEWA Rural honoraria, medicines and other supplements. The hospital as an apex body coordinates the CHPs outreach activity, supervises training, and concentrates on education and monitoring of staff.

Maternity care, being a collective and cooperative effort of all categories of health and *anganwadi* workers, is a vital component of the CHP as it has a close bearing on infant, perinatal and maternal mortality and morbidity.

SEWA Rural successfully reduced infant and childhood mortality by 63 and 66 per cent, the crude death rate by 33 per cent, and malnutrition by 33 per cent per child. The proportion of trained attendant-aided deliveries and immunisations have gone up by 240 and 60 per cent, respectively, which is much higher than the base year performance and the objectives set after five years of the programme (1984-1989).

SEWA Rural is the most convincing evidence of the fact that health workers can perform efficiently outside a conventional hospital-based system.



Professional misconduct, negligence, corruption and complete commodification of the medical profession are becoming routine. The leadership of the health services is in the hands of surgeons or specialists and, of course, administrators, all of whom have little or no knowledge of rudimentary public health. Therefore, the response of the system to the current crisis is usually to mask the issue for as long as possible. In most parts of the country, the disillusionment among the people towards the government sector is almost irreversible.

In the private sector, too, ethics means little and its accountability to the public is gradually diminishing. Given this grim overall situation, radical remedies are necessary to arrest this downhill trend.

1. In a large diversified country where the health status as well as geographical, environmental, social and epidemiological factors vary dramatically, decentralised planning is necessary as it takes into account local conditions. Communities should be involved right at the start, rather than expect them to participate and take on the responsibility of a programme which was not conceived by them to begin with. It is necessary to provide people with the skill of handling day to day health problems so that their dependence on the health system is reduced.
2. Given the fact that in most parts of the country there exists a rich health tradition, it is necessary to understand, document and nurture this tradition so that it can play an important role in future health services. It is possible to upgrade the present infrastructure without too many resources with the help of the thousands of existing practitioners of the system.

3. There has been a manifold increase in health infrastructure over the last few decades, much of which is non-functional. One of the major tasks should be to optimise the utilisation of this infrastructure. This necessitates that the accountability for this infrastructure is gradually but surely handed over to the local communities.
4. The motivation, training and orientation of most health personnel in the government sector today have little to do with the role that they have to fulfil. They are totally unsuitable for promotive and preventive health care in the rural areas. It is of critical importance to review this situation and take corrective measures, otherwise even rudimentary improvement in the health services is not possible.

Perhaps the time has come to look at the possibility of identifying local men and women and sponsoring them for training in medical and paramedical lobbies so that they can return to serve their own communities. This can also ensure that the gravitational pull of health personnel to the cities is reduced.

5. Motivation and training of the staff alone will not add up to much if they do not have the facilities and the resources to provide the desired services. The current budget for primary health care is extremely low, and almost 70 per cent of it is spent on staff who contribute little to the services. Since curative services are the major demand of the people, the system has to ensure that there are enough resources to provide free medication to the poor. Since a large section of the middle class spends a considerable sum of money in the private health sector, perhaps

they could be expected to pay for their treatment at government centres as well. Given the non-availability of quality drugs in the rural areas, why cannot the PHCs have a private distribution system of quality medicines at a fair price?

6. Currently, the only source of information and knowledge on health is usually from the social marketing campaigns of the drug industry and medical professionals who are very often hand in glove with the industry. The government's efforts through the mass media are usually related to family planning and other vertical programmes. The existing platform of the state as well as the people must be used to build up rational, scientific thinking on health among the people. The Kerala Sastra Sahitya Parisad's (KSSP) achievements are a perfect example of the possibilities in this sphere.
 7. The damaging effect of target-oriented vertical programmes like family planning and immunisation need not be overstated. This approach is detrimental to community health programmes as it permanently destroys the relationship between communities and PHC personnel, thus leading to serious malpractices like falsification of records. The current preoccupation of the Health Ministry with the National AIDS Control Programme is another example of this verticalisation. For the year 1992-93, the budget allocation for this programme is about Rs 70 crores while the allocation for the entire health sector is Rs 300.02 crores.
 8. The voluntary sector has shown, through several experiments in various parts of the country, the possibilities of people-oriented community health care. The government sector has to learn from these experiments. It would be useful to reorient government functionaries by exposing them to these motivated initiatives. It is also important to look at the possibility of actively promoting the voluntary health movement in difficult pockets where the health status of the people is particularly unsatisfactory.
 9. The role of the private sector in health care is becoming more and more predominant. The time has come to ensure that there are regulatory measures to see that the sector provides quality services at a reasonable cost. It is equally important to build up a strong consumer movement to check the growing malpractices of this sector. The recent judgement of the Consumer Council is a step in the right direction. A rational drug policy will be another important step in the same direction.
- Keeping in view the fact that the private sector is also playing a role in primary health care, it is important to work out a mechanism by which to involve them in official programmes and to help them to improve the quality of their services.
10. With the steady growth of the urban population and

the deteriorating health situation, it is imperative that we evolve and implement a clear policy of urban basic health services, with adequate emphasis on

Table 9
Per Capita Government Expenditure

Year	Health	Education	Defence
1951	0.61	1.29	5.15
1956	1.33	2.96	5.15
1961	2.35	5.45	6.92
1966	3.63	8.76	18.75
1971	6.46	14.22	23.26
1976	12.88	29.45	42.19
1981	25.66	50.20	58.99
1988	57.00	142.00	153.00

Source: 1. Combined Finance and Revenue Accounts, CAG, GOI, respective years (for 1951-81).

2. *Currency and Finance Report 1987-88*, vol. II, RBI, GOI (for 1988).

The lop-sided health budget is also clear from Table 10.

Table 10
Budget of Health and Family Welfare—1991-93
(in crores)

	1991-92	1992-93
Total		
(Health and family welfare)	1139.90	1302.00
Family welfare	859.00	1000.00
Health	282.00	302.00
National AIDS control programme, modernisation of blood banking and transfusion services, and STD control programme	9.00	70.00*

*23.3 per cent of the health budget.

their development and well-planned referral services for curative care.

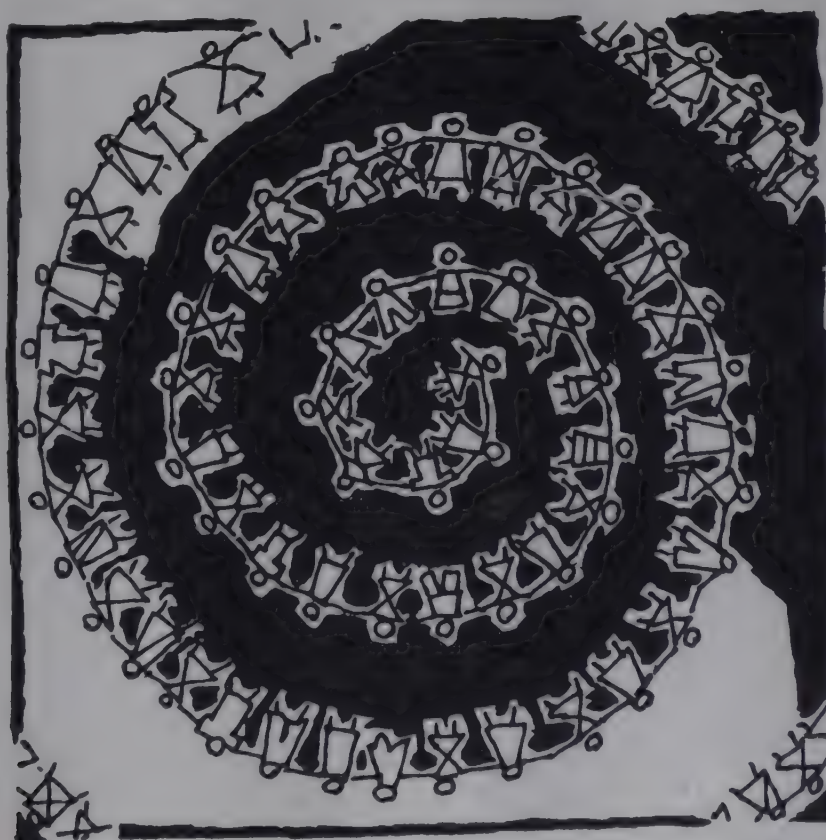
11. One of the reasons for the poor quality of services is inadequate resources, which is evident from the fact that the allocation to the health sector has not kept pace with other sectors, as seen in Table 9.
12. Finally, the compartmentalisation of the government's developmental efforts has dampened a broader, holistic approach to health in India. Accessibility to food and housing, to clean water, sanitation and a clean environment, universal primary education, especially for girls, raising the socio-economic status of women are all critical components of a genuine health and development strategy. Many of these issues fall in the realm of political economy. Can the health functionaries venture into these areas? It is worthwhile to quote, in conclusion, Dr B.C. Roy, who, in his Presidential Address at the All India Medical Conference in Lahore in 1929 said:

But there is one question which has often been asked and which I desire to deal with shortly before I conclude. It has been asked whether a member of the profession should interest himself in any matter outside the four corners of his professional life, whether this Association should take up matters which, in common parlance, are dubbed political? Gentlemen, I have very definite views on this

question. In India, we have never regarded the various affairs of life as being in watertight compartments: politics, technically so called, is intermixed with economic, social and medical problems. If politics means the science of organisation for the purpose of securing the greatest good for the largest number, I declare, we members of the profession dare not keep away from politics.

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Environment and Health

Introduction

'Sustainable development', 'environment and development', 'green economics': these phrases are commonplace today. They signal a perceptible shift that has taken place over the last two decades the world over, whereby development is more than ever before being planned in accordance with reversing natural resource destruction and conserving a healthy environment. However, planning for a more healthy environment today seems to relate more to economic planning and maximising resource creation than to the improvement of people's health and well-being (see World Commission on Environment and Development 1987).

How then have these environmental changes promoted better human health? Ostensibly, improving health remains the primary goal of any environmental programme. But preserving the natural resource base may or may not lead to preventive health, or a reduction in morbidity and mortality. It is becoming increasingly evident that processes related to modernisation and industrial development can coexist with environmental programmes geared towards resource regeneration, but for the most part industrialisation is harmful to people's health, particularly to the health of the poor, unless special measures are taken in this regard. Thus without safeguards, the already low health status of people in this

country will continue to decline. In some cases health measures have been partially built into development planning, but more often than not preventive health care remains undermined. Witness for instance environmental pollution in urban slums, or the exposure to pesticides, as two examples.

In the Western industrialised states, tremendous headway has been made in linking environmental factors to health. Many of the health problems have been perceived to be the direct fall-out of the environment. The high incidence of heart disease and cancer, for instance, has been increasingly linked to diet, lifestyle, exposure to toxic wastes, etc., all of which can be controlled by changes in a given environment. The governments in many industrialised countries have established Departments of Environment to do just that. In contrast, in countries of the South like India where people are more affected by the debilitating conditions associated with poverty, their environments are more difficult to change without overall development. Where do we begin to understand the myriad environmental hazards afflicting our people every day? Let us begin by first introducing the shortcomings of the current environmental perspective as it relates to health, followed by the health perspective on environment, before establishing new grounds for prioritising environment-health hazards.

Environmental Perspective on Health

As mentioned above, the environmental policy and programmes being implemented today have not adequately considered health and other social costs (see Box 1).

Environmental impact assessment guidelines do not sufficiently take into account the social costs (and hence health) which are an important consequence of resource depletion and destruction (see Box 2 for more details).

Whether this is the result of the bias inherent among policy-makers that 'the environment' is an external, physical entity with nothing but a functional or economic bearing on people is a matter of debate. What is

important is that infrastructural projects that are sanctioned—even after impact assessment—might even be increasing morbidity or mortality rather than reducing it.

To counteract these shortcomings in environmental policy and planning, many green activists and ecologists are calling for a wholly new thrust in India's development. They are making use of the potential and costly catastrophes like Bhopal and Chernobyl to justify that there must be a 'parring' of India's industrial growth in favour of a more long-term and sustainable production system.

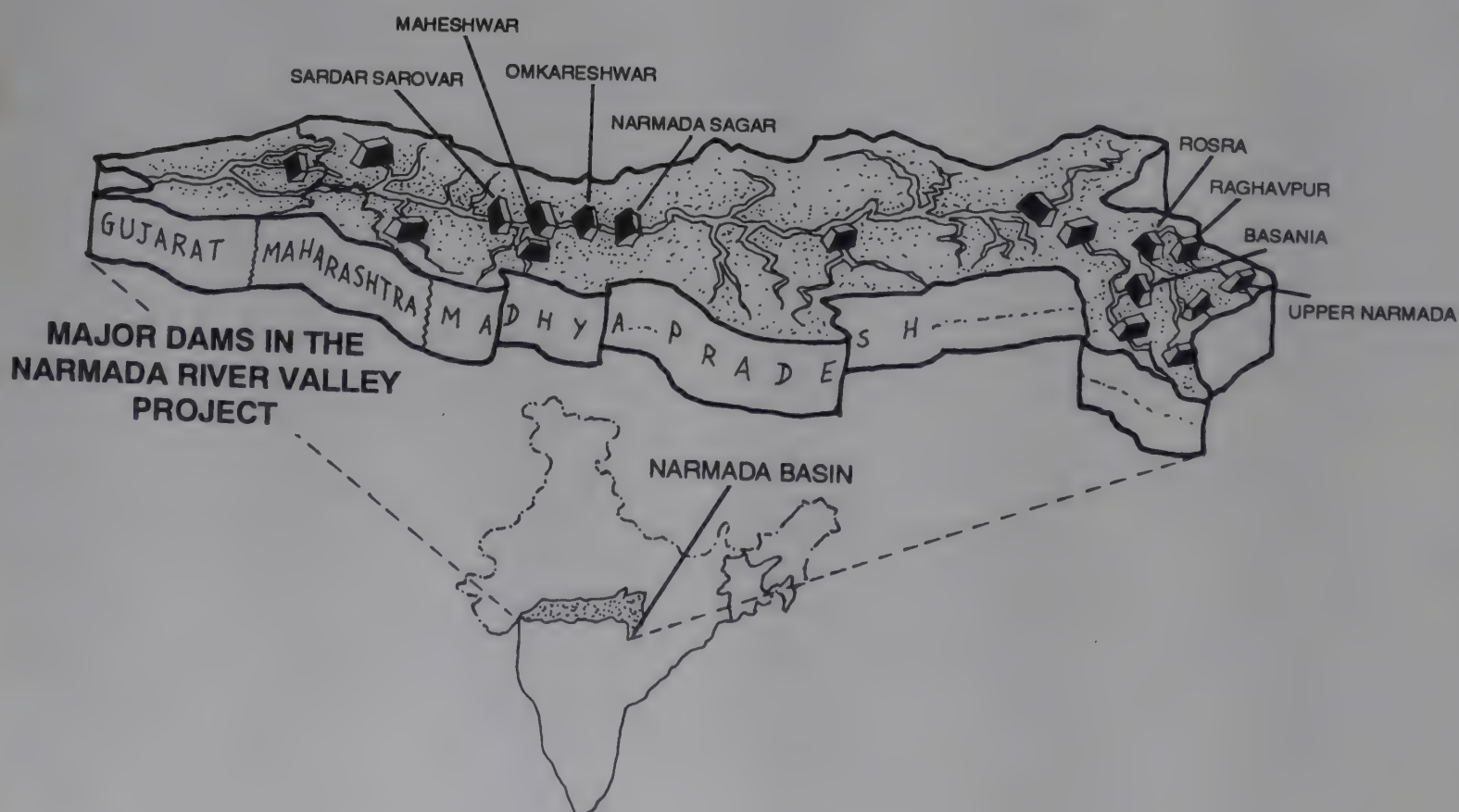
Obviously these macro changes are complicated by India being a newly industrialised nation, which must follow a path different from countries at the peak of

Box 1

NARMADA DAM

The Narmada is the largest west-flowing river in the Indian Peninsula. It originates in a holy tank on the Amarkantak plateau in Shahdol district in Madhya Pradesh and winds its way for 13,000 km through what the British described as the 'richest and most fertile valley in India' (C. Elliot, from *District Gazetteer*, Hoshangabad, 1908). According to the 1971 Census, 16 million people inhabit the valley, most of them belonging to tribal sub-groups. The Sardar Sarovar being planned for Navagaon in Gujarat will have a discharge of 40,000 cusecs of water and will be the largest 'lined canal' in the world. Not only will it produce hydel power, but it will supply municipal water as well. The Gujarat dam alone will cost Rs 5,404 crores. Given that this is one

of the largest dam projects in the world, population resettlement has not been given commensurate attention, and it is believed that people are not being adequately compensated for their displacement. The NVDT (Narmada Valley Development Trust) claims that it is working towards development-oriented rehabilitation, but Claude Alvares, one of several opponents of the dam, maintains that the Government of India and the World Bank are guilty of violating international law which ensures that tribal people have 'community rights over the land they have traditionally occupied.' These concerns about rehabilitation have fuelled fierce debates among both supporters and opponents of the dam.



industrial growth. With an abundance of raw materials and cheap labour the state can ill-afford to exclusively regard the Western brand of environmental measures as beneficial (for instance, introducing high technology equipment into industrial processes so as to decrease waste), when this may in fact have a negative effect on employment and overall productivity. Environmental health in India must safeguard against the deleterious effects of industrialisation on the people without compromising the imperatives of India's economic development.

Another shortcoming of the current environmental perspective as it relates to health is that there is a

Box 2

ENVIRONMENT -> HEALTH: THE GOVERNMENT'S ROLE IN ENVIRONMENTAL IMPACT ASSESSMENT

The Government of India is gradually accounting for the environmental damage being wrought by infrastructural development projects. In the last decade the costs to the environment have been factored into the cost-benefit analysis in the planning system. This is based on the recognition that deleterious effects to the environment may result in the loss of human lives and immense destruction to the resource base, on which most industrial production depends. Consequently, before the construction of factories, thermal power plants, dams, mines, or quarries, or prior to any development which might affect forests, the Ministry of Environment and Forests must give its sanction.

Yet, this does not sufficiently consider the impact or social costs of infrastructural development, or the adverse health condition created. We found in the Narmada case, for instance, that the assessment of the health aspects was marginal. If a large-scale impact assessment study gives such little regard to public health, the fate of lesser-known and more poorly assessed projects can be fairly accurately judged.

When Dr S. Moudgal, Director of the Impact Assessment Division of the Ministry of Environment, drew up his guidelines on impact assessment of river valley projects, he described the health problems as the outcome of changes in water velocity, temperature and other physical properties. No mention was made of the social, cultural and economic impact, except with respect to some of the relocation requirements. When one considers the dimensions of a river valley project in which one million people are to be resettled, it is surprising that the impact of the changed environment in altering the household economy and hence the health status of individuals is not considered at all. Village Parveta in Gujarat where rehabilitation has taken place is a case in point. Thirty-six deaths were recorded over a period of two years, attributable to the unusually high incidence of diarrhoea, dysentery, nutritional deficiency, etc. This was in part due to the fact that the community had to adapt to an area where cultivation was more difficult.

In sum, environmental impact assessment does not sufficiently take into account the social costs (and hence health) of infrastructural development. Nor have we reached a stage where we fully understand the irreparable damage that infrastructural development projects can cause to the environment and the long-term health status of our population.

tendency to look upon the environment as a set of finite natural resources rather than as an integrated physical and social setting in which people live. This bias is the result of the reductionist approach to the environmental sciences. Over the last decade we have been fortunate in witnessing an emerging school of alternative environmental thinking in India, which has raised the notion of the 'sociology of environment'. This enables us to better understand the environment's effect on a changing health status (although little work has yet been carried out), specifically on how a series of degenerating ecosystems are impacting on people's health.

Health Perspective on Environmental Hazards

There is ample literature on the social and cultural aspects of a 'demedicalised health system', a notion that became commonplace after the promotion of community health in the Third World in the 1970s. However, limited attention has been paid to the environmental aspects of health promotion and preventive health. Generally, health sociologists tend to view the 'environment' as either synonymous with the physical condition of poverty—which results in their limiting the options available to the poor and subsistence-level people in changing their environment—or as a neat set of practices relating to hygiene and sanitation that can be easily 'managed'. Both these views of environment projected by health specialists need to be explored and reviewed.

If health planning is to grasp certain environmental hazards, it cannot continually reduce 'environment' to the physical conditions of a particular disease. We have learned over the past three and a half decades that the elimination of malaria cannot be achieved by the annihilation of a pest carrier and parasite (see Box 3).

Had that been the case the severe outbreak of a more virulent strain of malaria which we experienced in India in 1977 after two decades of systematic spraying of DDT and other organophosphates would not have occurred. Instead, we have to view the environment as an ecosystem or habitat. It was with this in mind that the Vector Control Research Centre in Pondicherry was able to pioneer methods in the 1980s for reducing the endemic malaria population through bioenvironmental control.

Another lesson learned in our review of the health perspective in the past few decades is not to equate the environment with 'a set of unhygienic practices'. This view has gained ground as a result of increasing collaboration and technology transfer between Western countries and India, particularly programmes concerning water and sanitation. With regard to cleanliness, purification and hygiene, there are age-old beliefs in the Indian tradition and culture (see Box 4), which must be received in their proper socio-cultural context. This view of the environment must be recognised for what it is—

HEALTH -> ENVIRONMENT: DAMS AND THE INCREASED INCIDENCE OF VECTOR DISEASES

It is widely accepted that malaria is one of the most common health hazards connected with large engineering and irrigation schemes. Modern-day river valley development projects must comply with the guidelines laid down by the Ministry of Environment and Forests to minimise faulty structures that would enhance malaria and filariasis. For instance, in the case of Narmada, it was recommended by independent assessment that adequate drainage mechanisms, whether through leakage-free canals or gullies, be ensured despite higher costs.

Such measures might minimise vector diseases on a finished dam, but during its construction the ecological conditions are extremely volatile. 'In the process of their being organised in highly integrated systems, all facts of the environment are brought into play—the lifeless, living, atmospheric and geological' (Dubois 1989).

It is difficult to grasp the complexity of the changes in organic life during dam construction. One of the perceptible changes is the rise of the water-table, and thus increased alkalinity, which has a direct bearing on the health status of the local population. Changes can be detected in the trace elements (copper, molybdenum, zinc, magnesium and fluorides) that are absorbed in foodstuff, leading to copper deficiency, excessive intake of fluoride, etc. This is then manifested in malnutrition, anaemia and skeletal fluorosis. These have been empirically verified in the command area of Nagarjuna-sagar in Andhra Pradesh, in areas adjacent to Hospet dam in Karnataka, and in Coimbatore within a 30 km radius from the Parambikkulam Aliyar dam.

Changes in the riverine system and impounding (containing) of water results in water-based hazards:

- *water-borne transmission* (i.e., transmission that occurs when the pathogen is contained in the water which is consumed, leading to diarrhoea or dysentery)
- *water-based transmission* (when the pathogen has an aquatic host, such as schistosomiasis)
- *water-related insect vector transmission* (i.e., transmission by insects breeding in or near water, precipitating malaria, encephalitis, filariasis or kala-azar)

With regard to vector-borne diseases, there are a variety of parasites that live in varying environments, and which are governed both by their host and the temperature and humidity in the surrounding area. For instance, the filaria parasite is transmitted by the culicine mosquito.

Malaria is transferred by forty different mosquito transmitters known as anopheles. The plasmodium falciparum parasite favours temperatures of 19° C and above, and the presence of standing water to ensure the maintenance of its host's life-cycle long enough for the parasite to get into the anopheles (mosquito's) saliva. The mosquito in turn has to be within close proximity of humans and animals to maintain its survival (usually they cannot fly more than one kilometre from their breeding ground). The parasite has then to be mediated through a human bloodstream before it can begin its reproductive cycle. Its chances of reproduction are greatly diminished if the immune system of the body is able to dislodge it (that is why malaria is more common among the malnourished whose immunity is lower).

For vector-borne diseases to be transmitted, a series of conditions have to be met. It is evident that river valley projects greatly increase the probabilities. Take, for example, the Sardar Sarovar Project (SSP) in Gujarat. In an investigation of forty-two sites along the river banks between Hanf and Kantiqajal, it was found that the upland areas with water retentive soils showed a higher incidence of malaria. Similarly, in the command area itself there is no way to control the spread of vector diseases. In the case of the SSP Project, the authorities have been applying three rounds of insecticidal spraying each year during the monsoons over a period of seventeen years. But this does not account for the Narmada area as a whole which consists of two large dams and canals, and smaller dams in a river basin covering over 98,000 sq km. The cost of spraying Malathion will undoubtedly be prohibitive; it costs as much as Rs 143 crores to spray the command area of the SSP alone. The Narmada Planning Authority admits that in view of the prohibitive expense of insecticidal spraying, current health services will be unable to provide adequate curative services in areas where outbreaks of malaria are inevitable.



a red-herring. For, the environment is not simply a question of hygiene, but an integrated system of physical and social relations.

Because our health conditions are an integral part of our environment, we cannot always assume that ill-health is manifested by disease. Rather, ill-health is usually a condition of weakness or stress, and regardless

of the symptom, there is an accompanying loss of 'balance' or 'homeostasis', owing to the change in the environment. It is important to diagnose and reverse this weakening process before more serious consequences occur. With an understanding of a person's changing environment the risk of health hazards may be significantly reduced.

HEALTH -> ENVIRONMENT -> HEALTH

Throughout his life, Mahatma Gandhi practised inordinate cleanliness, a regulated diet and self-imposed abstinence. For him, control over one's health and well-being was synonymous with a more beneficent environment, and the result of a beneficent environment was greater control over health. The preservation of a healthy human environment, however, necessitated that people have control over the political and economic domains as well. His prescription was not new. In the ayurvedic tradition, for instance, the word *gan* (body) was used

interchangeably to mean the human corpus as well as the external environment. These systems taught that a person should follow the laws of nature by adopting conduct that would ensure an equilibrium or homeostasis between man's internal and external environments. Modern medicine, on the other hand, is rooted in microbiology and seeks to determine methods of controlling a person's microbiota through synthetic materials that alter his or her internal health condition. Obviously this system gives scant regard to the external environment.



Deconstructing the Environment and Health

As indicated above, 'the environment' in which we live is an ecosystem or an integration of physical and social relations. Therefore, the conditions of ill-health are usually the result of a multiplicity of events, and, a correlation between environment and ill-health is not easy. Scientists determine environmental factors through clinical testing of the disease and its causal agents, but this is only half the story. What is necessary is to deconstruct some of the social and physical relations in order to establish preventive health measures. It is through such an exercise that we can identify some of the environments that are directly related to ill-health.

Social Factors

The factors that impinge on a person's health can be found in many settings, within the home or at the workplace, in the rural or urban environments. Let us briefly examine these settings.

Health in the Home Environment

The home environment plays a crucial role in the prevention of diseases, not merely by providing physical surroundings such as a house, or access to potable drinking water, but also, and more importantly, in terms of its non-physical and psycho-social dimension. The home environment helps to condition a fixed set of habits and behaviours and it determines our linkages with the community, the natural surroundings outside and the larger society. These are all important factors in the kind of health that is maintained. A good home environment then, plays a very important role in achieving good health.

With the wave of community development that has gathered momentum in the last two decades, the home environment is one target area of which health planners are becoming increasingly aware. For instance, the health status of the people of Kerala is normally attributed to the high literacy level of the women—a fact that is most important in the functioning of a healthy home environment. The 'cared-for-child', a motto promoted by UNICEF and its constellation of welfare agencies, requires that the home environment have sufficient means to provide the child with a productive life.

Health in the Rural Workplace Environment

The workplace too promotes both health and disease. If the workplace does not provide basic amenities and job security, it adversely affects the health and productivity of the workers. In addition, the workplace has an impact on those who live around it, on the families of the workers, and on all those people affected by any alterations in the physical environment due to pollution hazards.

Health in the Village (Rural) Environment

It is important to distinguish between the village (rural) and the city (urban) environments because of the basic differences in the hazards to health in these external environments.

In the village environment, infrastructural development is creating an adverse environment for those not benefiting from rapid industrialisation. Infrastructure, an integral part of industrialisation and urbanisation, has helped to change people's relationship with land, technology and production. Those in the subsistence sector are increasingly marginalised by these forces. The landless and others, whose means of survival is being appropriated through the capitalisation of human and natural resources, are those who suffer the highest rates of mortality and morbidity.

Health in the City (Urban) Environment

The health problems of people within a deteriorating urban setting cannot be viewed in isolation from the environment. But what can health workers do even if they know that slum expansion is being accelerated because of the inequities of urban planning? The government maintains that with huge capital inflow, environmental conditions in slum areas can be improved, even if the inequities cannot be redressed. They claim that with operating civic and medical services (such as an adequate water and disposal system, and a sufficient number of dispensaries), at least the high risk of disease and epidemic outbreaks can be brought under some measure of control.

This is often what the government means by 'environmental health', but this is seldom a 'reality' in urban slums. It is more often the case that basic health services and utilities do not operate, no matter how much capital investment is designated. In fact, these basic services of water supply and disposal facilities are frequently the sources of the health hazards of local populations but they are rarely addressed as such. Thus, although the state is largely responsible for these health problems, the people themselves are more apt to be blamed for having low standards of personal and environmental hygiene.

If people have unequal access to land and basic services, are threatened by pollution and the lack of environmental hygiene, and are unable to avail of proper health services, it is no wonder that they have to endure high rates of morbidity, mortality, mental stress and social ills. Given these conditions, it is difficult to adopt any individual or family practice that could ameliorate the situation. It has been shown by many urban development organisations that only when the community acts collectively to pressure the government to provide operating services will environmental health



exist in reality. It has also been shown that for basic services to be maintained in the long-run, basic inequities will have to be redressed.

This paper is divided into two sections—rural and urban environments—more as an educational tool to help us identify health in various settings. But before we turn to this, let us also review the physical relations between people and their environment.

Physical Relations

The physical relations between people and their environment is also important but difficult to categorise. To simplify this, we have selected a common disease, malaria, and attempted to identify a few of the unexplored physical relations for its existence.

Much work has been done in India on the bio-organic conditions that predispose a population to malaria. Biologists have a clear notion of the optimal conditions for parasite breeding and vector transmission, such as the quantum of humidity, temperature, and other spatial and temporal conditions. But there has been little exploration of people's use or misuse of water resources and its impact on malaria. This includes location of settlements, the impact of modern agriculture and its increased dependence on pest management, the impact of large-scale dams, the pollution in urban centres, and several other factors that have increased the incidence of malaria.

Housing and Vector Diseases

Poor housing conditions are invariably part of a poor living environment. In changing a poor living environment, it is not sufficient to change the materials with which the house is constructed. Vector diseases like malaria have been increasing in spite of the increased number of cement houses constructed by the government since the 1960s. Instead, the housing conditions should be part of a more sustainable environment in which the living space, its site and location, and access to facilities are seen with reference to the local environment. This is the only way to guarantee good health in general, and the eradication of vector diseases in particular.

More than 75 per cent of the total population living in India's villages resides in settlements that house about 5,000 people (about 200 dwellings—Census 1981). As the vast proportion of the villages do not benefit from industrialised agriculture, the capacity for local resource generation is low—with the residual effect of poor services and facilities. The water sources, for instance, are still predominantly from unprotected and often polluted community wells (68.08 per cent), while tanks account for only 6.45 per cent, and tubewells about 9.35 per cent. Community wells are a good location for malaria-breeding mosquitoes to harbour. Despite the introduction of tubewells, mosquitoes will continue to breed as long as stagnant water is to be found. This element must therefore be built into the programme.

Some community development experts have been testing methods of bioenvironmental control of malaria and other vector-carrying diseases in villages. The main thrust of organisations like the Vector Control Research Centre has been to regulate the breeding of mosquitoes in ponds through the introduction of larvae-eating fish (*Larvivorous*), and to remove some of the organic matter found around ponds (reeds, weeds, etc). This is based on the assumption that organic matter at a certain temperature optimises the environmental conditions for mosquito-breeding. In addition, it is important that housing sites be as far away as possible from stagnant water.

The location of the house is very important in the control of vector diseases. With the construction of settlements near irrigation reservoirs, canals, water channels and tanks for purposes of irrigating land, the threat of vector diseases is higher. The mosquito-carrying parasite cannot usually fly more than 3 km from its breeding ground, but a settlement closer than this to the irrigation source is definitely a health hazard.

Finally, another aspect conducive to vector-breeding is the cohabitation of humans and animals. This usually results because of overcrowding in homes, where the average area per person is approximately 5 sq m. Further, the rooms are usually small, dark and windowless, conditions further conducive for the transmission of parasites.

Health in the Rural Environment

Health and the Home Environment

The home environment, as we have already said, plays a crucial role in the prevention of diseases, both in terms of providing physical necessities and in terms of its social dimensions.

Drinking Water

Lack of safe drinking water is one of the greatest health hazards faced by rural households today. Although our ancient texts—the *Sushruta Samhita*, for instance—cited several measures to purify water, these are no longer adequate in the face of such water-related diseases as amoebic and bacillary dysentery, cholera, diarrhoea, hepatitis, typhoid and guinea worm. Furthermore, low birth weight or malnourished children are



particularly at risk as their already weak bodies fail to resist the onslaught of infections. Although the government has worked since Independence to provide safe drinking water to the rural populace, only 30 per cent have access to sufficient water. It has been found that in over 30,000 villages in India, the rural people's only source of water is cholera-endemic.

The source of water within the home is closely related to the state's policy with regard to water use and management. Although there is sufficient drinking water available in India (the Indian population consumes only 1 to 2 per cent of total water supply), water scarcity is

a startling reality. While dams are being constructed, the control of water resources is not directly boosting drinking water supply. While the construction of tube-wells is making tremendous headway, much of the generated water is being diverted for the irrigation of cash crops and hybrid species. Thus, both ground and captive surface water sources have been exploited in such a manner that they only minimally serve the existing rural populace and will do so even less in future. With fewer water sources available, people have to allocate it according to their several needs—feeding livestock, washing, drinking, irrigation, watering the kitchen garden, etc. Invariably, environmental and personal hygiene are relegated to the background. Scabies, leprosy, trachoma, and conjunctivitis are some of the diseases commonly associated with water scarcity, as also with lower caste households which are denied access to safe water sources by the monopoly of the higher castes.

With an increasing population and diminishing land area, waste disposal has become a problem and excreta-related diseases such as hookworm and ascariasis are rampant. Barefoot workers are particularly susceptible to these diseases and it has been found that hookworm is the direct cause of the high percentage of rural women suffering from anaemia.

A survey by Banerji (1982) showed that 8,790 villages in the country had no latrines at all and those that did had bucket latrines which did not in any way enhance environmental hygiene. It is hoped that the benefits accruing from common toilets (*sulabh sauchalyas* and pit latrines using minimum water) in reducing water- and excreta-related diseases will be promoted and enhanced.

Fuel Shortages

The health of rural women is in peril as a result of their changing environment. Take, for instance, the problems of firewood collection:

- In a village in Karnataka, to gather the requisite 1.7 tonnes of firewood every year requires 2.51 hours per day, covering 8.5 km or 172 trips per year, approximately 1,500 km traversed (CSE 1985)
- In Punjab, nine women recovering from a tubectomy operation could not afford to rest during the post-operation period due to fodder collection demands
- In Bihar, seven to eight years ago women of poor rural households could get enough firewood both for domestic use and income within a distance of 2 km. They now have to trek 8 to 10 km per day
- In Gujarat, where the surrounding forests are denuded, women spend long hours collecting wood and shrubs and digging out roots of trees

In the face of firewood shortages, not only are women forced to change the food habits of their families (Bina Agarwal 1989), but they tend to sacrifice their own nutritional intake in order to provide more for the family, often missing meals altogether. This, during pregnancy when they should in fact be increasing their intake of calories, results in women becoming anaemic. According to Dinesh Agarwal (personal communication 1990) of the Medical College, Udaipur, studies have shown that more than 70 per cent of women suffer from anaemia in Udaipur. Poor iron intake, however, is not the only cause. These hazards are thrown into bold relief when we consider the fact that biomass collection is only a supplementary activity—a large percentage of rural women also work as agricultural labourers. Thus, excessive labour within and outside the household compels women to limit their hours of rest to the minimum. This is particularly inadvisable during the menstrual cycle and during pregnancy.

Surveys conducted in the 1950s showed the incidence of anaemia to be between 50 and 90 per cent during the third trimester of pregnancy. This has remained unaltered since. In India, maternal mortality is about 500 to 10,000 live births and maternal mortality among anaemic women is five times higher. Anaemia has a profound impact on health as it lowers resistance to fatigue and disease and affects the working capacity of a person. In addition, it increases the risk of death during childbirth. It is starkly evident that the problem is inextricably linked to the environmental conditions surrounding the rural populace, and, contrary to popularly-held beliefs, cannot be solved through the intake of iron tablets alone.





Status of Women

There are a host of psycho-social factors that impinge upon the health of women, thus having a deleterious impact on the home environment. The problem of leucorrhoea, or white discharge, has been found to occur in pregnant women in their second trimester, in girls at puberty, and in lactating mothers. A study by Gupta and Borkar (1987) has drawn attention to the problem among construction workers and has associated it with anaemia, malnutrition, calcium deficiency and abortions performed with unclean apparatuses. Very few studies have correlated these gynaecological problems with environmental factors in or around the home. Many of these problems are a direct result of the status of women within the household. As seen earlier, the demands placed on women are a well-known cause of maternal mortality. Similarly, the low status ascribed to women in the household denies them privacy in such necessary functions as bathing and toileting, particularly during the menstrual cycle. Genital infections often arise because of lack of clean water, lack of sanitary textiles, insanitary delivery procedures often confined to cowsheds, or the transmission of sexual diseases. A stress-free environment; according to Professor A.K. Kumar of the Department of Psychiatry, Trivandrum (personal communication), could go a long way towards reducing the incidence of pregnancy and childbearing disorders which are often induced by stress and other psychological conditions (see also Box 5). A case in point are the women of Garhwal. These women are forced to manage the household as well as work on the lands, often in the absence of the menfolk who migrate outside the region in search of seasonal employment to augment their meagre income from the land. Constant stress and anxiety is coupled with sexually transmitted diseases contracted during their husbands' home visits, abortions, and other gynaecological problems.

Addictions

Alcohol addiction is becoming an environmental factor insofar as it is a constant variable in the home environment. It compounds the condition of malnutrition, as chronic alcoholics suffer from malabsorption of major nutrients; it increases the level of violence within the household; it aggravates the condition of poverty;



and leads to a higher incidence of liver disorders. According to Dr A.K. Mukherjee of the Directorate of Health Services, Government of India, almost 20 million people suffer from the chronic hepatitis B virus, a figure that is increasing alarmingly with the increased intake of alcohol.

The increased demand for alcohol has created a new monster in the rural areas—the thriving trade of local liquor production. This local brew is often toxic and causes degrees of poisoning. This is visible in certain tribal areas where the menfolk are outwardly sickly, with yellowish eyes and puffy, bloated visages. In these areas, women are also prone to drinking this brew which has been shown to have an adverse effect on their menstrual cycle. Children of such parents have been known to suffer from congenital heart ailments, poor coordination, hyperactivity, and other emotional and mental problems. A common complaint of the women in Himachal Pradesh, for instance, is that alcohol addiction makes their lives more violent and aggressive, often leading to abortion and other childbearing disorders, to suicide and other violent acts.

Box 5

STRESS AND WOMEN'S HEALTH

As far back as 1946, the Bhore Committee highlighted the fact that Indian women exhibited more psychiatric morbidity than men. Later, a review of rural women and development drew attention to the impact of stress and fatigue on women's mental and physical well-being. Recently, a study by Madhu Sarin (1989) in Solan district has illustrated that almost 80 per cent of rural households are affected by alcohol abuse to the

extent of driving the women to suicide. Rape has also become a common problem—the perpetrators often being close relations of the victims. It is evident then that the deteriorating social milieu has a deleterious effect on the ethical, moral, mental and physical health of the people, a fact that needs to be urgently appreciated by health researchers and policy-makers.

Health and the Work Environment

The workplace is commonly visualised as a factory-like environment (which might be found in cities), as a production process or functional set of technologies to which the worker is incidental (which might also be found in an alienated industrial setting). In rural areas, typical workplaces are those of farmers, agricultural labourers, cottage and small producers, those involved in natural resource industry, etc.

In this section, the occupational (within workplace) and environmental (outside workplace) hazards of these settings have been illustrated with a view to highlight the hazards that impinge upon a person's health and well-being.

Primarily because of the massive workforce in India, little attention is paid to guaranteeing productive work conditions, both in the physical and social settings. Although the National Commission of Labour was established in 1966 to broaden the definition of labour welfare to include health, sanitation and other amenities in the workplace, little has been done to enhance the Labour Welfare Fund that would finance it. Furthermore, those who benefit from this fund are rarely the most needy small and marginal farmers, the contract labourers, agricultural workers and those in the semi-organised and unorganised sectors. Moreover, the environmental devastation caused by the existing production processes has accelerated the destruction of land, forests, mineral wealth and water—a sad testimony in a country largely dependent on subsistence agriculture. While the government has recognised the need for greater collective organisation of workers (Central Standing Committee on Rural Labour 1985) and the need for poverty alleviation (National Rural Employment Programme, RLEGP, etc.), little has been done to combat the physical and social hazards associated with the rural workplace. And these, in the final analysis, will have a deleterious influence on production in future.

Hazards Within the Rural Workplace

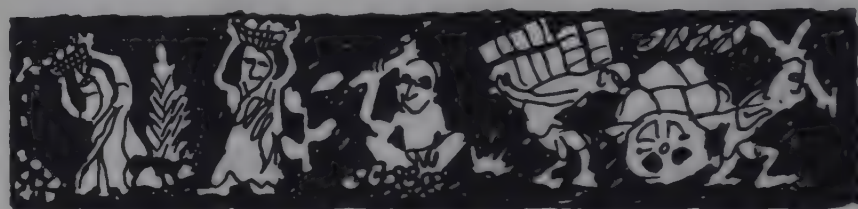
The government is becoming aware of some of the hazards within the workplace which are causing a variety of illnesses, but only partially. The areas which have been largely neglected by the government are:

- Agricultural labourers who suffer from poisoning while in direct contact with pesticides and fertilisers
- Women labourers who are physiologically more vulnerable to pesticides and other toxic agents during pregnancy and after childbirth
- Workers in various processing units such as quartz grinding, agate production and *beedi* rolling, where a high incidence of tuberculosis, silicosis and silico-tuberculosis is found

- Mine workers (coal extractors) who are not only at risk from accidents or visible ailments but who are subject to chronic poisoning and early mortality

Even in the public sector and large-scale industry where health and safety measures as well as compensation have been built into the system, doctors rarely relate the diagnosis to the social conditions or the state of weakness suffered by the workers. It is evident that they do not proceed from the overall health of a worker, and whether or not he or she suffers from weakness, even if the source of the weakness arises from obvious environmental conditions. In the case of malnutrition or mental stress, for instance, doctors do not take preventive measures. In other words, health officials become aware of a worker's problems only when the disease has become manifest, and that too, often beyond the stage when curative techniques can provide relief.

The weakness experienced by workers in the unorganised sector is usually not a direct consequence of the operations performed at the workplace. Rather, they are related to unfair employment contracts, the effect of migration on a family, and the effect of industrialised agriculture on a worker who has not made the social-psychological adaptations necessary to work in a changed environment.



Hazards Outside the Workplace

Very little attention has been focused on the impact of the rural workplace on the local habitat. There is a tendency to equate pollution with large-scale industry, and to assume that small-scale production is beneficent to the environment. This is not always true. Pesticide contamination in India is assuming alarming dimensions and its effect on microbiota, ground-water, fish, animals and humans is devastating because of the sheer numbers of people using these toxic substances on their crops. Similarly, preventive measures must be adopted by small industry if hazards to the environment are to be curtailed (for examples see Boxes 6, 7, 8, 9 and 10).

Although little is known of the direct effects of these small-scale industries on the external physical environment, it would not be wrong to conclude that just as water pollution is the known result of the leather tanning process, a large number of small-scale industries could have an aggregate effect. Surely pollution control regulations should be mandatory for all small-scale processing units as well?

Box 6

PLANTATION WORKERS IN ASSAM AND DARJEELING

The working environment of plantation workers in the tea gardens of Assam and Darjeeling, or in the coffee and rubber plantations in Karnataka, Kerala and Tamil Nadu are abysmal. Although the State Plantation Act lays down certain stipulations, these are rarely adhered to. A recent survey of tea gardens carried out by Samarjit Jana of AllHPH in 1989 found that:

- The housing facilities were in direct violation of the Plantation Act. There were also no toilets or sources of potable drinking water
- No medical facilities were available to the workers
- The smaller tea gardens rarely allowed the workers the stipulated benefits for illness and other leave facilities. Such services as canteens, creches and recreational facilities remained on paper alone
- As the work is based on a piece-rate system, workers were compelled to work long hours
- Without footwear in the cold and wet climate, the workers often developed fissures on their feet that went untreated.

Women often contracted hookworm which in turn caused prolonged anaemia

- Despite the fact that most of the tea gardens were located in the goitrous belt, no iodine was distributed as a preventive measure

Pesticide poisoning is becoming a reality not only for sprayers but for people living in close proximity to areas which are continuously sprayed with pesticides. In 1975, for instance, 200 people in forty villages in Karnataka were crippled and their locomotion impaired when they consumed fish and crabs collected from the nearby rice fields that had been sprayed with parathion and endrin. The epidemic of epilepsy in thirty-six villages of Uttar Pradesh was shown to be the result of food contaminated by BHC. Similarly, agricultural labourers and plantation workers are continuously at risk, living as they do in close proximity to fields treated with pesticides. Furthermore, belonging as they do to the unorganised sector, agricultural labourers and plantation workers are not protected with safety gear such as gloves, boots, masks and respirators. In fact, it is believed that 50 per cent of all workers do not wear any protective gear at all.

Box 7

BEEDI WORKERS

- Of the 9 lakh *beedi* workers in India, nearly half are women
- Exposure to nicotine has caused tobacco poisoning among the tobacco collectors, better known as 'the Green Syndrome'. It has been seen that over 50 per cent of the *beedi* workers in Gujarat and Andhra Pradesh were thus affected. Furthermore, a sample of sixty-nine respondents reported such problems as vomiting, giddiness, headache, exhaustion and loss of appetite
- Exposure to tobacco dust while rolling and tying *beedis* leads to irritation in the eyes, conjunctivitis, rhinitis and interference of the mucosal surface
- Pregnant women have exhibited abnormal foetal growth
- Although a fixed minimum wage has been established on a piece-rate basis in most states, this is rarely adhered to



Box 8

FOOD PROCESSING

- While the food processing units are rapidly developing into large-scale export industries, few basic amenities exist at the workplace
- These units usually employ female and child labour to avoid paying higher wages and providing amenities
- In Verbal, Gujarat, more than 6,000 fisherwomen from Kerala work a sixteen-hour day and in violation of the Minimum Wages and the Interstate Migrant Workers Acts.

The processing units are often located in ill-ventilated godowns with no drinking water or toilet facilities

- Of the women workers involved in fish processing in Bombay, 51 per cent were found to be suffering from fatigue, backache, pain in the legs and chest congestion. Skin infections caused by the bacteria from fish were also common. None were provided with gloves or first-aid (Desai and Gopalan 1983)

Box 9

**SOAP STONE, KHADI AND CANE/
BAMBOO INDUSTRIES**

- There are more than forty stone grinding units located on the outskirts of Udaipur city. Two hundred workers in five randomly selected units were subjected to a health examination. It was found that more than 20 per cent suffered from respiratory diseases and more than 6 per cent were coughing up tuberculosis bacilli on sputum examinations
- Khadi industries are almost exclusively state-run, employing over 145 lakh people. Despite regulated production and marketing facilities, a survey revealed that in sixty-five units in Kerala a majority of the female workers suffered from health problems arising from the postures they maintained for long stretches at spinning and weaving
- The scarcity of bamboo stocks has given rise to unscrupulous middlemen who exploit the artisans by selling them the raw material at exorbitant prices, thus putting them at risk of losing their livelihood altogether

Box 10

LEATHER PROCESSING

- A high incidence of tuberculosis and other respiratory ailments has been associated with the dust and fumes emitted during leather processing
- Contact with sulphides, chlorine dioxide, lime and hydrogen sulphide in tanneries has led to cases of acute toxic poisoning

Farming Environment

Modern systems of agriculture have created for the farmer a large number of off-farm dependencies. The list of 'Green Revolution' inputs which include hybrid seeds, chemical fertilisers, pesticides and artificial irrigation have brought the farmer large returns primarily at the expense of the long-term health and productivity of the land. Every crop removal has meant the diminishing value of micronutrients in the soil. Improper drainage and soil management in irrigated tracts have laid fertile lands waste through water-logging and soil erosion. An unrestricted use of powerful pesticides has destroyed the natural biotic system of pest management with chemical residues entering the human chain from plant, water and soil. The high cost of these external inputs aimed at ensuring maximum yield has assuredly accelerated food productivity. But at what cost? The most fundamental premise of sustainable farming is that farmers give precedence to soil protection and regeneration over all else. The yield steadily improves as the soil regains its health. What is crucial to this system is the optimum use of available, affordable, renewable and environmentally benign inputs. From the use of animal and farmyard

manure, to an integration of trees, animals, birds, insects and aquatic life into cropping patterns, there is an effort to rely on genetic diversity to accumulate and cycle natural nutrients in order to protect both soil and plants effectively. The approaches differ with the specific socio-economic and natural environments within which they develop and through the cultural and philosophical factors that influence them.

**Modern Agriculture and the
Resurgence of Malaria**

DDT (dichlorodiphenyltrichloroethane) was the first synthetic organic insecticide to be used following the Second World War. Given its high insecticidal activity (killing power), its low cost and its resistance to degradation, it was believed to be one of the sure measures for preventing vector-borne diseases from transmission. Used as a public health measure, it was only later applied as an insecticide to ensure crop growth. These insecticides are used particularly for vulnerable hybrid (hybrid rice and wheat) and cash crops.

With its extensive use in agriculture, it was a contributing cause to malaria resistance, although this is difficult to prove conclusively. In Gujarat, for instance, the tremendous increase in the incidence of malaria that occurred between 1963 and 1976—a total of 400 per cent, or 28 per cent per year, cannot be separated from the fact that cotton was introduced as a cash crop into Gujarat about the same time. Cotton is a plant that is highly susceptible to pests and has since developed a resistance not only to DDT but the more lethal hydrocarbons known as BHC and Malathion. If grown in the same region where there is a life-threatening outbreak of malaria, it could be dangerous. The most virulent epidemic in 1981 in Bamorli village of Nadiad taluka was the result of high rates of mosquito infestation due to the presence of a river, canal and innumerable ponds.

Similarly, the increase in the incidence of malaria in Tamil Nadu between 1967 and 1976 coincided with increased cropping under different high-yielding varieties. This meant the extensive use of pesticides, and the near replacement of organic manure by chemical fertilisers.

Agricultural Labourers**Occupational and Environmental Hazards of
Agricultural Labourers and Plantation Workers**

- Agricultural labourers are by far the most neglected sector in the workforce and are rarely considered 'real workers'. Their workplace is always changing, often across states. Usually they are not entitled to any job amenities as their work is seasonal and dependent on the amount of work available

- Labour-intensive activities of planting, sowing and scything involve the use of short-handled tools like forks, hoes and scythes which keep the women in bent and crouched positions for long stretches
- The male workers are given the skilled operations which involve the use of mechanical equipment. However, they are paid unskilled rates. Moreover, not used to these threshers and chaff-cutters, they are often injured on the job with not even basic first-aid available to them. Official estimates put the figure down to 1,000 threshing injuries each year, mostly in cane crushing and cotton ginning. According to Batra (1983), 10,000 workers had been permanently incapacitated by power threshers by 1983. The International Labour Office also drew attention to the use of hazardous and ill-designed tools in agricultural operations



Agricultural Labourers and Malaria

Malaria is invariably present when there is population movement, lack of drugs due to inadequate health services, poor socio-economic status, and the prevalence of environmental factors conducive for breeding. The weaker sections are the most disposed to the environmental conditions causing the disease.

Shankargarh, 42 km from Allahabad, is a rock quarry known for silica sand and building stones. Here, 13,000 labourers are employed in 884 sites. Some of them have migrated from Madhya Pradesh, although the numbers are not known due to the unauthorised nature of the mining operations. It is known, however, that these workers are a major source of falciparum malaria infection, and chloroquine resistance has been detected. Of the 6,743 malaria cases reported from this district, 2,301 (34.19 per cent) were from this block alone.

Through the efforts of a field-testing station on bioenvironmental control, mosquito-breeding sites are sprayed on a weekly basis, unused wells are treated with EPS beads, and guppy fish have been stocked in the village ponds, wells and stagnant bodies of waters. With the simultaneous effort to organise village meetings and promote health education camps, there has been a significant decline in the mosquito density, particularly of the *A. culicifaces* variety, the courier of the resistant and fatal strain of malaria.

Occupational and Environmental Hazards of Natural Resource Based Industries

Natural resource based industries such as mining and quarrying are included in the organised sector. As most operations are state-run, it is hoped that there is some rationalisation of the workplace in order to develop a productive workforce. However, while workers are protected in terms of fair employment and safety guarantees under the Mines Act and are compensated for injury, sickness and disability under the Workman's Compensation or Employee's State Insurance Scheme, this does not go far enough. A large percentage of workers in the mining industry are not entitled to any benefits at all as they are hired as daily labourers. And consider the hazardous nature of the work itself:

- In 1958, an explosion in the Chinakudi colliery in Raniganj caused the death of 200 miners
- In 1975, water flooded the mines in Chasnala killing 430 miners
- In 1976, forty-three miners died in the Sudamdih mines in Dhanbad
- In 1982, seventeen labourers died when the roof of the Tata mine collapsed

- In 1989, seventy-one miners were trapped for several days in the Raniganj coal-mines

These are only a few of the well-publicised accidents that have occurred over the years. But what of the hundreds of accidents that go unreported? Estimates suggest that 200 miners die each year while 4,200 sustain serious injuries at the workplace. The estimate does not, however, include contract labour, who account for a very large percentage of miners and quarry workers (National Commission on Labour 1969).

In an environment bound by target production, health and safety are not priorities. Despite an elaborate system of safety inspection under the Director General of Mines Safety, and education and training of personnel in all large mines, the necessary vigilance is difficult to maintain. Furthermore, the state acquired these mines and quarries from private owners who did not see fit to build in safety facilities. The quarries are in a worse condition, operated as they are by small contractors. A recent survey of the quarries on the outskirts of Delhi by PUCL, a civil liberties group, revealed the following scenario:

- The deep pits had no barriers preventing a fall. Those pulling up stones from the pit into the overhead

crusher stood on an unfenced platform at risk of a fatal fall

- Frequent landslides and falling boulders have caused injury, as also blasting with explosives
- While breaking the stones, small slivers fly off the anvil and threaten the worker's unprotected eyes and body
- The stone dust was the cause of several respiratory problems
- Labourers frequently injured their hands and feet from falling stones while loading the trucks

At another quarry site at Bhatti, the PUCL revealed that more than forty-five persons lost their lives in 1977, a figure the government claims is the annual loss of life across quarries in the country!

The high incidence of death and injury is evidence that increased mechanisation at the workplace has in no way upgraded the lives of the workers. In the words of Dilip Hota, a trade unionist working in Singhbhum: 'The very concept of modernisation is a value-based one. It is inappropriate mechanisation not modernisation. Here in Singhbhum, this mechanisation has destroyed the old social fabric and thus the social support system of the





tribals—but has not created any new modern social fabric that is qualitatively better' (personal communication).

If we are to look at health and environment in conjunction, the environmental conditions causing the state of weakness in a worker must be acknowledged as having long-term implications. If we have evidence to show that conditions at the workplace cause respiratory problems among the workers, is this not evidence enough that this could lead in future to major health hazards, particularly when compounded with a general state of weakness, malnutrition and alcoholism? The United States, for instance, has adopted what is called the 'Black Lung Compensation' which can be claimed by miners for more than fifteen years if there is any sign at all of lung disease, irrespective of clinical findings. This is an effective way of expeditiously dealing with such problems as pneumoconiosis, silicosis, tuberculosis and silico-tuberculosis, all of which may have a direct relationship with lung cancer. Although silicosis and tuberculosis were acknowledged as occupational diseases by the Mines Act of 1952, it was only in 1987 that pneumoconiosis was given the same recognition. While the worker can claim compensation through these regulations, those in the smaller mines and stone quarries at the hands of corrupt and exploitative employers fail to claim any such benefits.

With the introduction of modern drilling, cutting and

crushing techniques into already ill-ventilated mines with no sprinkler system, the dust particles in the air have in fact increased and are known to lodge in the lung cavity. Silica, an element of coal, not only reduces the body's defence system but also causes the disease silicosis.

It has been found that 45 per cent of former employees of the stone quarries in Lalitpur district in Uttar Pradesh were forced to give up work due to respiratory disorders. As the land was no longer cultivable, they had no alternate form of employment, joining instead the pool of unhealthy and unskilled labour.

Mines and quarries are located in environments free of natural vegetation on which the dust emitted has an adverse impact. The presence of natural vegetation could have played a role in offsetting the amount of dust released from these work sites. As it is, the dust penetrates even the nearby homes of the workers. Within these homes, as a PUCL survey showed, there is usually a shortage of water and no medical facilities which only serve to aggravate the already abysmal situation.

And what of the natural ecosystem? Both open-cast and underground mining have a deleterious effect on the physical environment as well.

- Underground mining removes sub-stratum soil whereby large tracts of surface soil collapse
- The devastation and virtual disappearance of the Bhatinda forest in Singhbhum is startling evidence of the havoc caused by open-cast mining
- Mineral extraction has its own hazards. Uranium extraction runs the risk of releasing radon gas which not only endangers organic life but continues to irradiate living forms over a long time
- By-products are dumped into river beds with irreversible adverse effects on marine organic life and those dependent on river resources

During the 19th century when the British were expanding their commercial domination to include mineral resources, they instituted a code of law denying people their rights to the lands. This was the beginning of human and natural resource exploitation at the cost of the health of both the individual and the environment. Sadly, this trend continues today. In the words of Shankar Guha Neogi, a trade union activist in the Chattisgarh mines:

The policy of the authorities to mechanise the mines is not only increasing the production cost and the retrenchment, but it is also increasing the health hazards. The respirable dust concentration is very high as a result of the massive crushers. But who cares for the Indian worker and his health? The ore wash-off is also polluting the water in the surrounding area, which is not only causing ill-health, but

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is also destroying the land and crops. These problems simultaneously destroy the worker's health and the environment and have grave implications for maintaining a productive rural environment (personal communication).

Health and the Natural Physical Environment

Various agroclimatic and natural physical factors are rarely acknowledged by policy-makers in development planning. The accelerated consumption of scarce resources (which cannot be met by natural resource creation) forces the government to recognise the finite material conditions associated with development, and ultimately its social impact.

Hilly Regions and Health

The ecological destruction that has been taking place in the Himalayas over the last half century has led to unprecedented poverty and a serious decline in the health status of the inhabitants. With soil erosion hastening a scenario of unproductive agriculture, with unabated deforestation making the collection of fodder, fuel, water and other biomass requirements on a daily basis a near impossibility, and with landslides threatening human settlement, the people in the Indian Himalayas are hardly able to survive on the local resource base.

These hardships impinge upon their health. For women particularly, the excessive labour required in cultivating food crops and collecting biomass, fodder and fuel has weakened their health considerably. Add to this the high incidence of worm infestation from contaminated water. For this reason the people in this area are highly susceptible to TB. Women suffer from anaemia and other gynaecological diseases like leucorrhoea, primarily because they lack the time to maintain personal hygiene or rest adequately during their menstrual cycle and pregnancy.

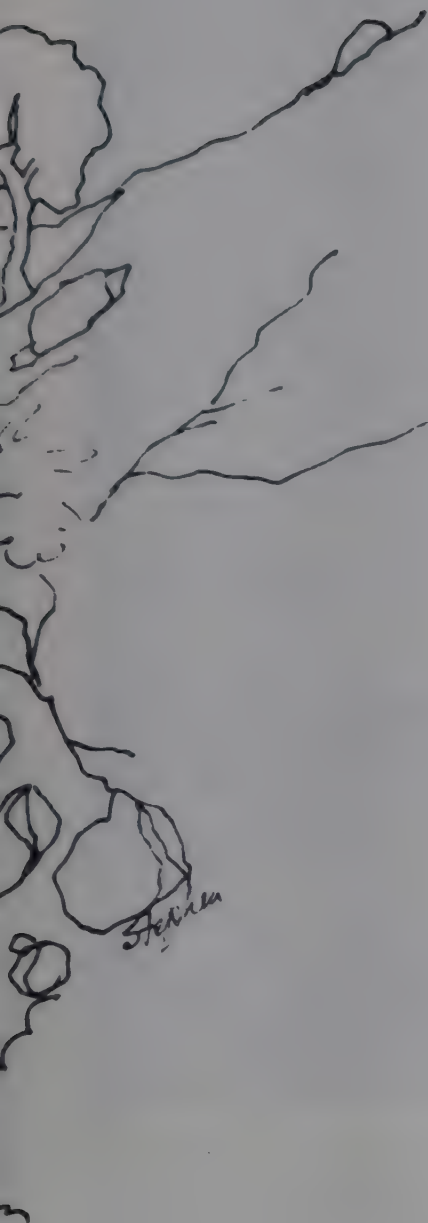
Desert Region

The pressure of modern agriculture has led to the breakdown of the traditional equilibrium between man and nature. The pastoral livelihood which characterised the Thar desert has been replaced by settled production, whether in the form of agriculture or natural resource use. Survival is difficult at the best of times but given the cycle of drought and famine, which occurs at regular intervals, the desert ecosystem does not provide sufficient means for survival. Because the time lag between the first stage of poverty and extreme poverty or death is fairly long, people's health is affected long before it actually becomes manifest in disease.



Areas Affected by Drought

Drought has always been a common feature of semi-arid and arid regions. As a result, people have learned to adapt to cycles of plenty and scarcity. The seasonal drought conditions have often been known to affect large populations in non-arid areas owing to the common occurrence of untimely rainfall during the monsoon and winter seasons. As our reliance on industrialised agriculture increases, farming systems have tended to deplete some of the land and natural vegetation that has always protected the basic resources as renewable. The shift towards intensive cultivation has led to the growing number of wastelands which cover a quarter of all our cultivable land area. This process of deterioration of our land resources goes hand in hand with the drying up of many of our water sources. Although the amount of



people became the victims of starvation deaths.

The National Nutrition Monitoring Board (NNMB), Hyderabad, in its survey conducted during and following the 1987 drought showed that diets were deficient in calories, proteins and vitamin A in all states. Protein energy malnutrition was most common among young children, and vitamin A and B complex deficiency as well as anaemia were prevalent in the older age groups.

These general findings do not sufficiently highlight the fatal conditions that were found to prevail in some dry regions like Rajasthan. According to the District Medicine Research Centre in Jodhpur, a sample survey in October 1987 revealed that vitamin A deficiency was of epidemic proportion, followed by anaemia and vitamin B deficiency. In Rajasthan alone 3,382 people died in fifty-five villages. Some studies indicate that although people died of dysentery and respiratory infections, it is believed that because the adults were consuming about 1,300 to 1,400 calories per day as against the usual requirement of 2,400, malnutrition was a primary causal factor (see also VHAI 1989a).

Flood Affected Regions

Floods have been a regular part of the natural development of the Gangetic plains of India. Today, floods have become a major hazard for which the government has spent Rs 1,700 crores on flood control and relief. About 40 million hectares, or one-fourth of the cultivable lands in India are flood-prone. Each year, 9 million hectares on average are inundated through flash floods which claim many lives. This in turn destroys organic life and upsets the natural water reservoirs.

Floods have become a hazard primarily because of the development practices of people. The pressure on the resource base in the Himalayas, with consequent deforestation and soil erosion, prevents water from being leached into the soil. There is increasing run-off and hence an increased amount of water that flows into the plains. With the water is a large amount of silt which raises the ground level in rivers and reservoirs, one major reason for the increase in the incidence of floods.



rainfall has remained constant, the capacity of the soil to retain water has decreased. These changes appear to be compounding our natural drought situation, causing poor or untimely rains in large geographical areas of India.

The 1987 drought which affected fifteen states and six Union Territories clearly demonstrated the vulnerability of the majority of farmers. Had it not been for the state's capacity to mobilise sufficient resources both in terms of surplus food stocks and relief funds, the damage would have been immense. The desert areas were the worst hit because here, the 1987 drought was part of a cycle that had begun in 1984. Not having had sufficient rains for such a long duration meant that all survival tactics normally practised in the dry regions during drought periods had been exhausted. Consequently, not only was there a deterioration in the health condition but several

A second reason lies in the infrastructural development which has been taking place for more than a century. The construction of human settlements, roads and railways helped disturb the pattern of natural drainage. Moreover, the construction of large water development projects such as dams, canals, storage tanks

and embankments designed to control the water flow has in part helped to increase the inundation. This can be illustrated with the example of the Kosi river in northern Bihar. In 1989 more than Rs 474 crores had been spent on flood control. However, between 1950 and 1989, the flood-hit areas had more than doubled since the water development project was completed.



Now, remove that and fix this one.

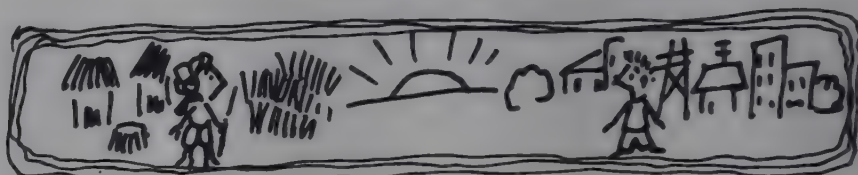
This has led to a series of other problems. For instance, because of the constant threat of floods in places like Kosi, the roads and railways have been laid on bunds much above the ground level. Between the roads, railways, irrigation canals and embankments, there is a massive grid of barriers which has destroyed the natural drainage system of the region. Not surprisingly, therefore, we find large tracts of land water-logged for a significant part of the year. People have begun to take up fishing as a livelihood in some of these areas, while others have sought seasonal employment elsewhere.

The health problems that occur in this scenario are related to basic survival. Malnutrition and lack of potable drinking water are often manifested in gastroenteritis, leading to higher mortality among children. Along with increased humidity come the vector-borne diseases such as malaria, which is particularly debilitating when flood victims are already undernourished. Increasingly, infrastructural development programmes are creating an adverse environment, particularly for those displaced by big dams, mines and similar projects. Rapid industrialisation has changed the relationship between people and land, production and technology. It has further marginalised those in the subsistence sector and threatened

their means of survival through the capitalisation of human and natural resources. Landless people dependent on common property resources, forest-dependent households and fisherfolk are examples of subsistence households traditionally dependent on what the environment has to offer. It is no surprise, therefore, that these are the same groups that have the highest mortality and morbidity rates.

The role of the external environmental conditions cannot be ignored. Unless this becomes a factor in planning, the government will find it impossible to take long-term ameliorative measures that would view sustainable environment in an integrated manner.

We move now to health in the urban environment, and reiterate that this separation of rural vs. urban is not to indicate a polarisation of environments, but rather, to highlight the peculiar conditions (which might, of course, overlap) prevailing in each.



Introducing Health in the Urban Environment

Regardless of how well health services are targeted to the poor in urban areas, 'real' development will be seriously impeded if the rapid rate of urban decay is not halted. The decay of the urban environment along with growing poverty is characteristic of all of India's 3,245 towns and cities, as the section on health in the city environment shows. In many of these, 'the existing health and morbidity patterns in urban slums are even worse than those in rural areas' (VHAI 1988).

It is most severe in the large metropolitan cities of Bombay, Delhi, Calcutta and Madras, where one quarter of the 25 million slum dwellers reside. Within the next ten years these cities will have more than 10 million persons, the majority of whom will be the urban poor. The slum population is growing at a rate faster than the total population (GOI 1985; see also Table 1). Already, the pressure of population is hastening the decline of urban metropolises like Bombay. In Dharavi alone, the largest slum in the world, half a million persons are contained within a relatively small area. Greater Bombay, which currently has the highest number of poor people, is likely to have seven out of every ten persons living in sub-human conditions by the year 2000. This is hastening the destruction of the whole urban environment. Thus, as already mentioned, the health problems of people within a deteriorating environment cannot be viewed in isolation from the environment.



Table 1

<i>Population of town/city (in million)</i>	<i>Total urban population (million)</i>	<i>% of total urban population</i>	<i>Estimated percentage of all India slum population</i>	<i>Percentage slum population in each class of city/urban area</i>
1 million and more	42.01	27.1	39-43	33-38
0.1-1 million	51.55	33.3	28-31	18-25
0.1 million	60.31	39.6	28-29	15-20
Total	156.20	100		

Source: Urban Task Force Report, Planning Commission.

The Degeneration of the Urban Ecosystem

'Slumification' and urban decay are not merely the result of population growth and urban migration. They are primarily the result of skewed development which favours the rich. We could take any large city for the following discussion because the conditions prevailing are deplorable in each. Take Delhi. In spite of the disproportionately high expenditure on services, there is a marked shortage of clean drinking water and environ-

mental hygiene for more than half the city's population. Add to this the high level of air pollution as a result of 15,000 registered industries and two thermal power plants, along with half of all the sewage being untreated. It is the urban poor who do not avail of basic services who have to contend with pollution. In addition, they are not compensated by the few existing and functioning dispensaries or hospitals and have to face the ills associated with the social environment as well as drug addiction, prostitution, and so on.

The constraints impeding environmental health in urban slum areas can be classified under three broad heads:

1. Unequal access to land, to public utilities and to urban infrastructure
2. Proximity to an industrial or other polluting source without provision of medical dispensaries that can deal with chronic or acute toxicity, respiratory problems and other industrial-related health hazards
3. Inadequate living space for the population, which has an adverse impact on the social and physical environment of the home

These constraints are elaborated in the case studies of Delhi and Trans-Yamuna in Boxes 11 and 12.

CASE STUDY—DELHI: SUPER METROPOLIS AND SUPER SLUM

Delhi has a disproportionately high annual disbursement of funds and in this favourable economic climate industry and commerce have flourished in the last decade (in 1990 it was Rs 800 crores, while it was Rs 1,200 crores for the entire state of West Bengal—GOI annual disbursement figures). According to media reports, Delhi is fast replacing Bombay as the commercial capital of India (*India Today*, February 1990). With this economic growth on the horizon, which has been made evident to people by the rising land prices, there is an inordinate amount of building construction underway and skilled and unskilled labourers alike are attracted in large numbers to the city.



It is estimated that about 2.5 lakh persons arrive in Delhi each year in search of work when there are already more than 3 lakh unemployed persons waiting to find some kind of employment. In other words, this growth is attracting a pool of unskilled labour, many of whom will be unable to find work, a natural consequence of urban disparities.

Migration puts a high demand on the state for housing and urban services. This demand has led to a situation in which 4.5 million slum dwellers live in Delhi in forty-four resettlement camps and 650-odd unauthorised slum clusters (VHA 1988). There are about 12 lakh people squatting illegally, waiting to be allotted a piece of land under the state-sponsored Jhuggi-Jhonpri Resettlement Scheme (JJRS). These squatters currently occupy about 10,000 acres of land illegally.

In 1959, the DDA (Delhi Development Authority) began regularising land tenure for squatters and shifting them into resettlement camps. Over this period, about 10,000 acres were allocated (*Times of India*, March 1990).

At present, the land plots measure about 12.5 metres per household, although previously the plot sizes were larger.

According to government statistics, about half of these have in turn been sold and the families have returned to the squatter colonies or to the villages. In response, the government is gradually upgrading existing squatter colonies rather than promoting resettlement schemes (GOI 1985).

In an effort to stem unplanned commercial, industrial and residential growth in Delhi, the Master Plan was devised in 1962, the first of its kind in India. The objective was to bring residential areas closer to workplaces through decentralised zoning and to ensure the grid development of urban infrastructure. One-fourth of the urban area was put under parks and open spaces. The Aravalli ridge was at the time a reserved area of 8,220 acres. There was also an 'inviolable' green belt of a width of 1.6 km (one mile) around the city.

Today, three decades later, the Plan has been violated by resettlement colonies, defence installations, unauthorised colonies, industrial developments, etc. The city is no longer contained by a green belt and to add insult to injury, much of the land which was allocated to squatters was not retained by them and was invariably repossessed by 'slum landlords'. This was the case both with housing plots and 'hawking' plots, plots on which people can market agricultural or other goods. In other words, not only was the Master Plan subverted through regularisation of land tenure, but poor people only benefited marginally from the programme.

Meera Bapat argues on the basis of field studies in Pune that poor families do not stay in the allocated housing plots because they are often too distant from the workplace. Housing is secondary to employment. This may be one of the compulsions for those who are assigned a plot to immediately sell it. Other compulsions may relate to the steep rise in the cost of living which goes along with higher quality housing which the poor cannot maintain (see Singh and Dhamija 1989).

In many areas of Delhi, the state has regularised illegal colonies, often for narrow political purposes. One such example are the JJ colonies in Trans-Yamuna, where the administration was not able to install basic services. In other cases, authorisation is given to settlers inhabiting low-lying, rocky areas where even if the administration were to attempt to install the basic services, the geographical conditions would prevent them from operating.

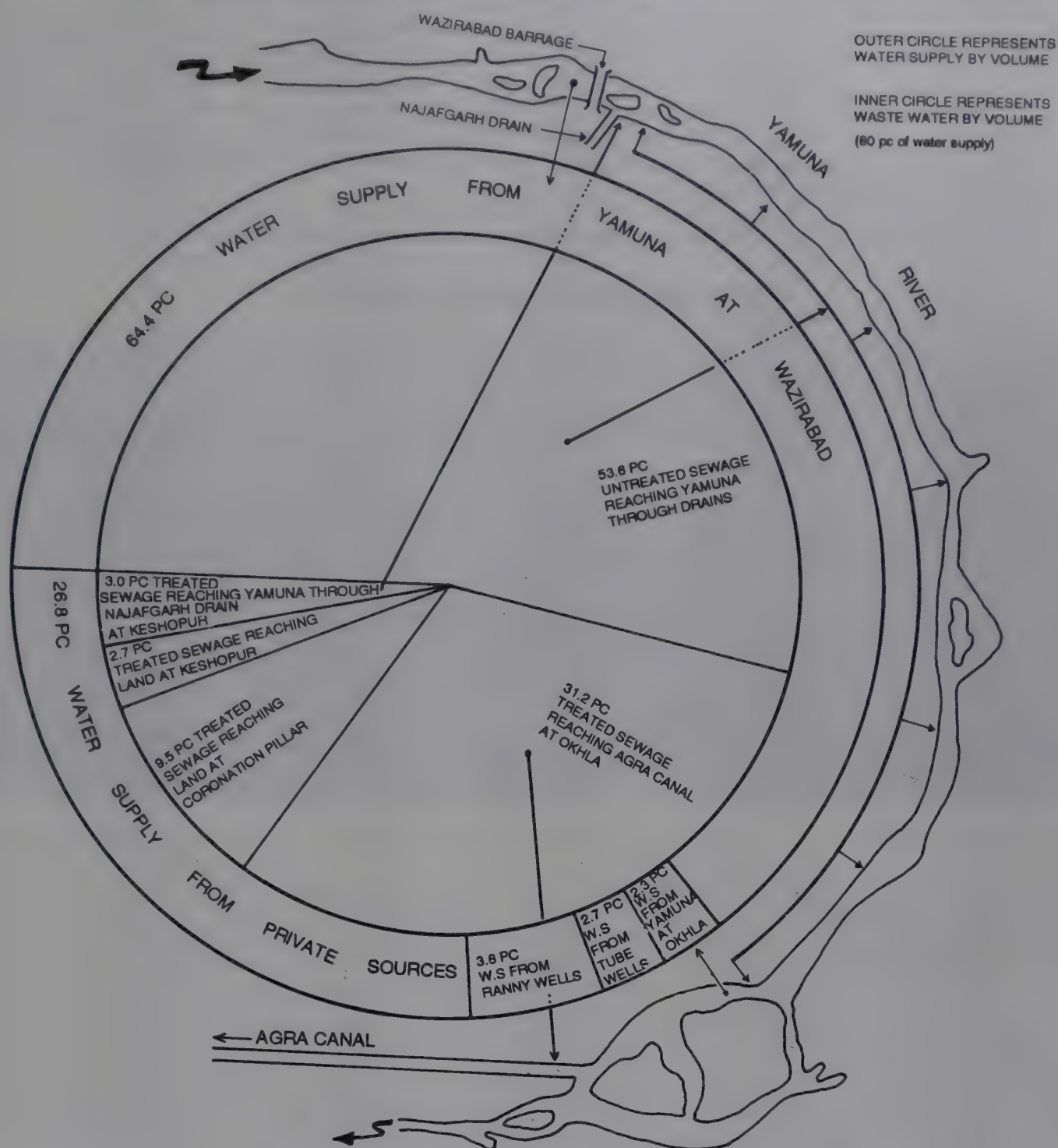
Some of the reasons why the Master Plan has been subverted include:

- A growing population (100 per cent growth between 1961 and 1981) which is forcing new migrants to settle or squat on all available land. Public areas which had been reserved for recreational or public utilities were encroached upon and the state could hardly resettle the encroaching families elsewhere
- Politicians are using the urban poor as vote-banks and therefore providing incentives that frequently contravene the Plan
- Regulating bodies like the DDA and the Urban Development Department often work at cross-purposes

The contravention of planned growth will have serious implications in future for the whole of Delhi and particularly for the urban poor. Officially, for every 10,000 people in resettlement colonies there ought to be:

- 1 water-based lavatory for every ten families
- 1 water tap for every thirty families

WATER SUPPLY AND WASTE DISPOSAL AT DELHI



- 1 handpump for every thirty-two families
- 1 dispensary
- 1 electric pole every 10 metres
- 15 ft-wide lanes
- 10 ft-wide roads and streets

The shortage of civic services and proper housing is the source of many of the health problems and epidemics, as demonstrated in the Box on Trans-Yamuna.

PROXIMITY TO INDUSTRIAL OR OTHER POLLUTING CENTRES

During the Yamuna's 48 kilometre course through the city of Delhi, it picks up nearly 200 million litres of untreated sewage, 10 per cent of which comes from industrial effluents. Industries generally discharge acids, heated water and noxious gases, some of which break down in water (usually organic material)

while others do not. For this reason, where industrial treatment plants do not exist, effluents pose very great dangers to human health. Take for example the toxic and hazardous wastes from chemical and other industries that produce plastics, soap, synthetic rubber, fertilisers, medicines, paints, pesticides, herbicides and cosmetics. These have high toxicity and may contain potentially hazardous properties which might be inflammable, corrosive, explosive, etc.

Many of the effects of chemical pollutants on human health are not known, as will be discussed later. For this and other reasons, medical officials are not equipped to measure the intensity of chemical pollution on environmental health in a given community. They do not have sufficient understanding of chronic toxicity, one of the main public health problems associated with chemical pollution.

We know, for instance, that certain chemicals like solvents cause slow organic damage in the higher centres of the brain resulting in psycho-neurotic symptoms. To what extent can this

knowledge be applied to the health hazards associated with small industry and with large chemical or manufacturing units that may not regulate their effluents?

A major problem of river pollution is that it could be radioactive in content. With the construction of the Narora Nuclear Power Plant on the river Yamuna, the potential radiation damage to Delhi could have untold consequences. Radiation is a substance that destroys the defence mechanism by creating a rapid ageing process. Miscarriages, stillbirths and

other genetic defects are commonly equated with low dose radiation.

If the forecast proves to be true, in ten years the public works will need three times the amount of water supply than is currently available, nine times the sewage treatment capacity and four times the amount of electricity supply. The present scenario with all its attendant inequities is bad enough. What will be the situation a decade from now?

Box 12

CASE STUDY OF TRANS-YAMUNA



LAND AND BASIC SERVICES FOR TRANS-YAMUNA

Trans-Yamuna is frequently referred to as a man-made slum. It was never before seen to be fit for human habitation as it was a marshland (Singh and Dhamija 1989).

The DDA was aware of the drainage problems long before they sanctioned the plots, and justified their planning on the grounds that a complex drainage system through siphons and sewage drains could be installed. However, drainage problems have continued to accumulate surface water and to contaminate sub-soil and ground-water. This is a grave problem for the three million residents in Delhi, many of whom live in Trans-Yamuna and whose dependence on handpumps, traditional wells and ponds for drinking water has led to serious health problems.

The Master Plan's recommendations stated that a maximum population of 7.5 lakhs could live in this vicinity which measured about 7,233 hectares. At present, the population is fast reaching one and a half million (or 50 lakhs), almost three times the anticipated number (DDA 1988). Besides the three major resettlement colonies built by DDA—Khichripur, Nand Nagri and Gokul Puri—there are about 270 unauthorised colo-

nies in the area, some of which have been regularised during various elections.

The structures occupied by families are not in conformity with any building codes or zoning regulations, partly because the income base of these migrants is too low for them to afford to comply. As unauthorised sectors, there are very few urban services. The DDA maintains that even in their revised plans for Trans-Yamuna, the installation of civic services is difficult if people who have encroached on those areas meant for public utilities are not willing to move.

Sixty-four per cent of Delhi's water supply comes from Wazirabad. Out of the 170 mgd used, only 20 per cent is consumed and the rest flows back into the river, carrying with it surface water, sewage and effluents. Waste water is disposed in the following manner:

- 53.6 per cent untreated sewage goes through the drains
- 31.2 per cent treated sewage travels to the Agra canal at Okhla
- 9.5 per cent is treated and kept inland
- 3 per cent is treated sewage which reaches the Yamuna through the Najafgarh drain
- 2.7 per cent is treated sewage which reaches Keshopur

Twelve per cent of waste water is kept inland after treatment, and of the balance, two-thirds is returned to the river untreated.

During the rainy season the river may reach a depth of 25 feet with a discharge at Okhla of about 4,100 mgd, whereas during the dry period the depth is no more than 4 feet with a discharge sometimes less than 200 mgd. Health risks could be associated with the dry season when the more concentrated pollutants percolate into the ground-water. This is of particular concern for the urban communities in the Trans-Yamuna area, because for the majority ground-water is their only drinking water source.

During the rains, when floods are commonplace, the low-lying areas—which lie about 10 to 12 feet below the river bed—fill with surface water. This tends to raise the level of the ground-water, once again risking high doses of organic or chemical waste in the drinking water of local residents. Although the Shahadra Marginal and left Marginal Bunds have halted the inundation to some extent during flood years, the problem of monsoon rains contaminating the drinking water is a perennial hazard.

During the cholera outbreak of 1988, a combination of both these factors may have been in operation. In the preceding three years Delhi had faced severe drought conditions during which water supply was

reduced considerably. When the untimely rains finally came there must have been an unprecedented intensity of pollution. The floods shifted these contaminated waters to the homes and locales of the Trans-Yamuna. The poorer sections of the population, dependent on shallow tubewells and living in houses without protective foundations, were the most susceptible to cholera and severe gastroenteritis. When the health department of the Municipal Corporation of Delhi tested the tubewells and other ground-water sources during the cholera epidemic, they found that 74 per cent were unfit for human consumption. The water had been contaminated for the past seven years but nothing had been done in the intervening period. Of the 15,000 persons who were referred to hospitals for treatment, little is known of the environmental conditions like pollution that may have caused the diseases.

Handpumps are inevitably surrounded by pools of stagnant water because of poor drainage. Water taps are built barely inches off the ground because the pressure of the water is so

low; often they are almost mouth to mouth with open drains. Open stormwater drains which pass in front of houses also carry sewage, and are a particular risk to young children who may fall in and, as happened in the past, die. It is rare to find a drain that is not clogged with garbage, sewage, animal dung or debris (VHAI 1988).

This was the state of urban services in the Trans-Yamuna area during the cholera outbreak in 1988.

These problems are not surprising given the fact that this was an unsuitable site for locating resettlement colonies in the first place. While the DDA had planned to drain this low-lying area with siphons, the plans remained on paper alone.

MEDICAL SERVICES IN TRANS-YAMUNA

In Delhi, the per capita expenditure on medical services is Rs 22.84. Of this, Rs 16 is for curative services and Rs 6 is for preventive measures. In an area like Trans-Yamuna, it is imperative that preventive measures, i.e., clean water and latrine installation, be the main components, if

cholera and other diarrhoeal infections are to be contained. Even during the cholera epidemic in 1988, these preventive health measures were overridden in favour of more politically viable activities such as mass vaccinations and garbage removal.

As regards the functioning of dispensaries, part of Trilokpuri was not even aware of the existence of a dispensary. The doctors spent their time immunising people against the epidemic, although it was believed to be 0.50 per cent effective. Pills were being handed out but people had no clear idea of how to take them. In short, the hospitals were unable to handle the overflow and no quarantine camps were set up. This only succeeded in increasing the intensity of the epidemic.

If this is the case of authorised colonies, what would be the situation in unauthorised colonies?



Disparities in Urban Development

India is characterised by disproportionately large spending, not only between cities and towns but also between urban and rural areas, creating regional disparities. The consequence of regional disparities is inevitably a high level of mass migration to urban areas in general, and to high-income cities like Delhi in particular. For this reason the plight of the slum population is much worse in the metropolitan cities than in the smaller cities and towns (see Table 2).



Table 2

Estimated Urban Population and Slum Population in 1990 in Metropolitan Cities

(Persons in Lakhs)

Name of city	Total population, 1981	Identified slum population		Growth rate, 1971	Estimated population, 1990	
		No.	%		popu-lation, 1990	slum popula-tion, 1990
1	2	3	4	5	6	7
Calcutta	91.74	30.280	32.9	30.35	135.33	43.86
Greater Bombay	82.43	28.314	34.2	37.80	117.89	41.26
Delhi	57.89	18.000	31.4	36.66	97.67	32.08
Madras	42.89	13.630	32.1	34.91	60.22	21.08

Not only is there a lack of basic preventive health care but curative services too are not guiding patients to look after their own health by identifying some of the environmental causes of their ailments. This is rapidly leading to a situation where curative services cannot cope with the volume of health problems (see Table 3 for per capita expenditure on health).

Table 3

Per Capita Expenditure on Preventive and Curative Health Services, 1985-86

	Curative	(Rupees)	Preventive
<i>Municipal Cities</i>			
Delhi	23.51		4.40
Bombay	65.21		10.17
Hyderabad	.37		.77
Madras	6.74		8.11
Lucknow	—		1.69
Ahmedabad	22.44		8.51
<i>Class I Cities</i>			
Bhimavatam	.72		2.64
Machilipatnam	1.65		2.71
Warangal	—		2.49
Calicut	4.36		4.32
Quilon	3.58		2.96
Guwahati	—		1.79
Behrampur	.51		.86
Mysore	.62		2.65
Jamnagar	3.02		.21
Khandwa	—		4.30
Baroda	7.28		10.32
Belgaum	3.52		4.92
Raichur	—		1.72
All Average Metropolitan Cities		28.58	
Class I Cities		6.51	

Given these conditions, it is difficult to adopt any individual or family practice that may ameliorate the situation. Only with community action can the problems of environmental health be mitigated to some extent.

On-Site Improvement Programmes

Many groups are developing environmental health programmes in urban areas and are working towards addressing the iniquities and helping to mobilise popular pressure for operational services. These are too numerous to mention. A number of on-site improvement projects have been launched by some state governments, and several NGOs are working towards upgrading squatter colonies and providing them access to basic services. The LWS (Lutheran World Service) in Calcutta, for instance, is one such group working with 400 migrant families on an integrated programme aimed at:

- providing safe drinking water
- creating appropriate shelters according to individual specifications
- constructing drains, sewage channels, latrines
- building roads and other community centres
- setting up vocational training programmes and schemes to generate additional income and
- establishing community-oriented health services and non-formal education units

These components recognise that only an integrated development programme can help address the social and physical problems relating to our environment.



Urban Basic Services

The government also has underway a large number of projects for urban renewal. One such example is the Urban Basic Services (UBS). UBS is a scheme adopted under the Seventh Five-Year Plan to integrate water supply and sanitation services with basic health care. It envisages a package of services including immunisation, improved feeding practices, home-based diarrhoea management, drinking water supply, environmental sanitation, and family welfare, with particular emphasis on the community's involvement at all stages of the project, from the pre-planning stage to implementation, monitoring and evaluation.

The programme, a joint responsibility of central, state, municipal governments and UNICEF, uses minimal capital resources and appropriate technology, relying heavily on social mobilisation and community participation. As the basic target unit is the household, particularly women, it may not take environmental factors specifically into account, but it does recognise the importance of sustainable environmental factors.

In sum, although government and NGO efforts at slum renewal and upgradation have been in operation since 1977, there are aspects of health and environment that have not been addressed. For instance, the environmental health problems associated with pollution and chronic toxicity seem to be in their infancy. Given the number of factories and small cottage industries, some of the health determinants related to polluting industries need to be spelled out. For example, if an industry is destroying a fragile ecosystem (i.e., contaminating the ground-water) or if an industry is in a poor urban location (such as Union Carbide in Bhopal), or if the production process of an industry might be harmful to local residents, this must be made known so that popular education programmes can force the implementation of appropriate safeguards.

Will the central government be able to regulate effluent and emission standards of the 200-odd small companies through cooperative treatment plans if they are unable to cope with the large industries with lucrative tax incentives? The government's plan of subsidising the establishment of common treatment plants will at best be costly and difficult to monitor.

Success Stories

There have been some notable exceptions, with schemes successfully stemming the threat of environmental pollution. These might serve as models for formulating policy guidelines:

- The ABPCWP in concert with state and municipal authorities have launched the Ganga Action Plan to coordinate the cleaning-up of various urban centres along the Ganges

- The Pollution Board of Punjab has set up 100 major waste water treatment plants catering to factories producing paper, fertilisers, textiles, etc. Experiments with sophisticated recycling equipment (i.e., electroplating, heat treatment) are being introduced to various factory-owners
- Chemical producers in the industrial area of Hyderabad have collectively set up a common effluent treatment plant for the disposal of wastes

Chemical Pollution

With the rapid expansion of urbanisation and industrialisation, people are increasingly concerned about chemical pollution as an emerging health hazard in their water and environment. Development planners still do not factor pollution control into water supply programmes. In the huge plan outlay given for water supply and sanitation (in the range of Rs 6,500 crores) for the period 1985-90, only a small proportion went towards pollution control (in the Sixth and Seventh Five-Year Plans it amounted to Rs 12 crores).

Environmental health is equated with regulation of organic rather than chemical waste (witness the tremendous emphasis on water/excreta-related diseases). This is largely due to the difficulties associated with diagnosing reactions to toxins and lack of information about the chemical properties of toxic substances. It may also be related to the overwhelming bias in medical research on the epidemiology of vector diseases over and above other disease-causing factors. Both organic pathogens and chemical substances need to be considered in urban areas, for poor habitations are usually in close proximity to them.



Take, for example, the effluents from pesticide companies. In the production of organophosphates, a large quantity of by-product is incurred. Producing 20 kg worth of solid may leave the producer with 5,000 litres of liquid waste. The disposal may involve the separation of treatable water from the chemical, and the burning of the toxic agents. This invariably results in the problem of gaseous air emissions that may continue to be hazardous. Both the liquid and residual waste could contaminate the water. Add to the scenario 200 or more small industries producing pesticides. The annual production for 1985-86 of organophosphates was about 102,328 tonnes. Imagine the level of by-products to be disposed of. How can we deny that it is an emerging health hazard?

With so few state resources directed towards pollution control, it is evident that the government is passing the cost of pollution regulation back to the industry. We need only to remember the tragedy of December 1984 in Bhopal when between 6,000 and 8,000 persons (unofficial statistics) died owing to a leakage of the gaseous substance MIC from the Union Carbide factory due to faulty production processes, to see that industry is not particularly bothered about environmental pollution. But assuming in the 'best case scenario' that large companies do take more measures, will this be sufficient? In India, moreover, we have the added problem of numerous small and cottage industries that are not inclined to take the responsibility for disposing their waste.

The Impact of the Home Environment on Environmental Health in Urban Areas

The deleterious conditions that have been created by rapid urbanisation—unemployment and migration on the one hand, and environmental pollution and social degeneration on the other—have made health and well-being a chimera at best. Until the recent efforts by community development specialists, the critical link between the health of the family and the environment was largely ignored. Now, with an emphasis on female education and child mortality, some attention is being focused on removing the deleterious environmental factors within the home.

When Engels described the English proletariat as 'pale, lank, narrow-chested, hollow-eyed ghosts' in his *Conditions of the Working Man in England*, he was drawing attention to the plight of the exploited coal miners and factory workers during the Industrial Revolution. Within a few decades, millions of individuals who had been raised on farms and in small towns were suddenly uprooted and exposed to the dehumanised conditions of

industry. Long hours of exhausting toil in deplorable conditions, poor housing, inadequate food and rest were thought to be some of the main causes of the TB epidemic that killed scores of people in the years following 1840.

Many physical ailments are the direct result of adjusting to a new social environment. In urban slum areas, migrants find the patterns of behaviour in cities conflicting with what they know from their traditions. Moreover, little or no control over the workplace or the finished product as well as alienation within the home environment with high rates of drug abuse, alcohol consumption, sexually transmitted diseases, and other mental disorders have an adverse effect on the overall health and well-being of the family.

The psycho-social stresses that may act upon migrants are not clearly understood. Although psychological factors are recognised as critical in the causation and prevention of disease, they are not usually related to the psycho-social or environmental settings from which they arise. The suffering of the urban poor is viewed in terms of suicide rates, social characteristics of the ageing process, integration of the aged in the community, spread of alcohol and drug abuse, and crime and juvenile



Box 13

PSYCHO-SOCIAL STRESSES

Ms Asgari of Bhureshah Jhuggi Camp, East Nizamuddin.

Age : Around 40 years

Occupation : Paper bag producer

Home District : Etah, UP

Health Problems : Asgari complains of body ache, particularly in the back, legs and head, due to postural problems associated with sitting ten to twelve hours making paper bags in her home. The chest pain she suffers may also be attributed to respiratory problems. (Although she looked like a TB patient, no clinical tests were conducted.)

Medical Services : According to Asgari there are no public health facilities in Bhureshah and people have to travel a great distance for any kind of treatment. She says:

'Doctors do not bother about us in government hospitals. We are kept sitting there all day at the risk of losing a day's wage. And during an emergency, we merely get pushed around.'

Mr Kheru Bhatt of Kathputli colony, Bhule Bisre village.

Age : 50 years

Occupation : Puppeteer

Home District : Sikar, Rajasthan

Health Problems: Kheru Bhatt's daughter was 15-years old when she died due to stomach maladies and fever. According to the doctors it was the preliminary stage of cholera. Kheru

Bhatt himself has considerable respiratory stress which he equates with the high degree of automobile exhaust. It may also be related to his addiction to *beedis*.

Medical Services: He describes the government dispensary in the same locality. In the event of colds, coughs, or other minor health problems, the family visits the dispensary, but for most maladies he prefers to go to a private doctor two furlongs from his house.

Ms Nirmala of Y-Block, Mongolpuri.

Age : 20 Years

Occupation : Sweeper, rag picker

Home District : Rohtak, Haryana

Health Problems: As a sweeper and rag picker, Nirmala suffers from skin problems as a result of handling garbage. The rusty wheel-barrow and pans cause cuts and the glass or metal fragments in the refuse pierce her skin. She says she suffers from headache, body ache, fever, extreme exhaustion and nausea and is often the victim of viral infections.

Medical Facilities: As there is no dispensary in her locality, she goes to a private doctor for treatment. Her children suffer from repeated attacks of fever, malaria, diarrhoea and worm infestation.

Box 14

URBAN ENVIRONMENT—THE REALITY

(i) **Bhureshah Jhuggi Camp** — Nizamuddin East

There are no surface drains. The open spaces are cluttered with garbage. The Municipal Corporation cleans the common toilets once every six months. Without electricity, it is not uncommon for people to fall into the water at night.

(ii) **Ambedkar Jhuggi Camp** — Nehru Place

One stand-pipe for drinking water serves 100 families. There are no latrines, no surface drains, no street-lights. Roads are in a bad condition and there is no system of garbage disposal.

(iii) **Kathputli Colony** — Shadipur Depot

There is a stand-pipe near some of the houses. Path-lanes are *kaccha* and during the monsoon they fill with water and mud. The community latrines are seldom cleaned by the *safai karamcharis*, resulting in their filth pouring into the locality.

(iv) **Mongolpuri**

In this slum area the domestic drains spill out all over the streets and even enter the houses.

delinquency, rather than in terms of mental health. We have tried to capture some of these psycho-social stresses in interviews with slum dwellers in Delhi in Boxes 13 & 14.

In a survey conducted in Greater Calcutta, 140 per 1,000 persons were found to suffer from some form of mental illness. Neurosis affects one in ten of the population, and sixteen per 1,000 persons are psychotic, half of whom are acute cases incapable of functioning socially. These findings have not, however, been correlated with the problems related to one's environment.

The following sections are examples of how the environmental problems directly affect people—particularly women—in urban slums.



Housing

With 24 lakh squatters in Delhi, there clearly is a shortage of housing. Just as urgent a problem is that of the deteriorating condition of existing structures. In urban centres across the country, over 20 per cent of the people inhabit dilapidated structures. This is compounded by the density of population within these homes. A survey of 4,000 households in nine slums in Bombay revealed that in 40 per cent of the homes, two to four people occupied one room, and in 35 per cent there were nine to ten persons per room. In Delhi too it is common to find seven to eight persons residing in 8x10 metre hutments. In addition to the limited living space, the house is often used for home-based processing in which precious space is used for storing raw materials. Ventilation, which is provided by small holes or glass panes in the walls, is inadequate, particularly in winter when the food is also cooked indoors.

Another problem relating to housing and health are the materials that are used in construction. As poor people generally build their own homes without any government subsidies, they are forced to use inexpensive and hazardous materials. During visits to four or five squatter areas in Delhi, it was noted that asbestos was a material commonly used for roofing, when it is known to have a carcinogenic effect. Several homes had brick walls with black polythene that is believed to be associated with the high incidence of coughs, colds, pneumonia and tuberculosis, as polythene forms are inadequate cover against the cold and damp. Yet other homes had tin roofs which are inappropriate for indoor cooking. These findings have been corroborated by other studies of Delhi's urban poor.

Urban Malaria

Malaria has spread to cities and small towns despite malaria eradication programmes that exist in 122 out of 3,000 towns. Urban malaria has to be linked with the general level of sanitation (i.e., open sewers, location of solid waste disposal, pollution of bodies of water, etc.), as well as with flooding during the monsoon. Especially vulnerable to urban malaria are the slum dwellers living in low-lying areas that are apt to remain flood-affected long after the monsoons recede.

Putting malaria eradication on a war-footing means that slum upgradation programmes must take place concomitantly. This has been achieved to a large extent in south Bombay. Similarly, the movement of labour for construction in the city or for agriculture in the villages transfers the disease between urban and rural areas. With the rapid expansion of cities the demand for unskilled labour also rises and concurrently the transmission of vector-borne diseases will continue. It was estimated that 25 per cent of the total detected cases of urban malaria had been exported to rural areas before the drug

treatment was complete. Thus, seasonal and permanent migration must be viewed as an important cause of malaria transmission.

Consumer Hazards of Pesticides

Why has malaria eradication been accorded massive state funds, while pesticide poisoning, an equally major health concern, has not? Medical officials typically respond this way: 'The rates of morbidity and mortality due to malaria are known, those for pesticide poisoning are not. Therefore, we have an ethical responsibility to respond to the former and not the latter with limited medical services.' Medical researchers claim: 'Clinical studies on the effect of pesticide poisoning on animals are not sufficient to prove pathological effects on man'; 'it is very difficult to prove the prevalence of toxic residues in people as a result of accumulation in the food-chain, ground-water and in the environment'; 'in sum, pesticide poisoning, like most exposure to toxic agents, is difficult to link to death and disease.'

Farmers apply hundreds of chemicals each year to control weeds, fungi or insects that might affect the crops. Pesticide residues pose the third highest threat to environmentally induced cancer, next only to cigarettes and radiation. Many pesticides were approved for use decades before researchers had tested their toxicity. Today, pesticide-contaminated food has become a



**PESTICIDES DON'T KNOW
WHEN TO STOP KILLING**

Box 15

TOXICITY

Cereals and Pulses:

The contamination of cereals and pulses is so widespread that it appears to be the most serious source of pesticide ingestion by consumers. The high levels of residues may be due to storage in godowns. For instance, while comparing the field samples of rice and wheat with stored grains, it was found that the latter had much higher DDT and BHC levels than the former, representing a fifteen-fold strength. Moreover, Malathion emulsion is usually sprayed in the FCI godowns and residues were detected in all twenty samples of wheat collected from these godowns.

Edible Oils:

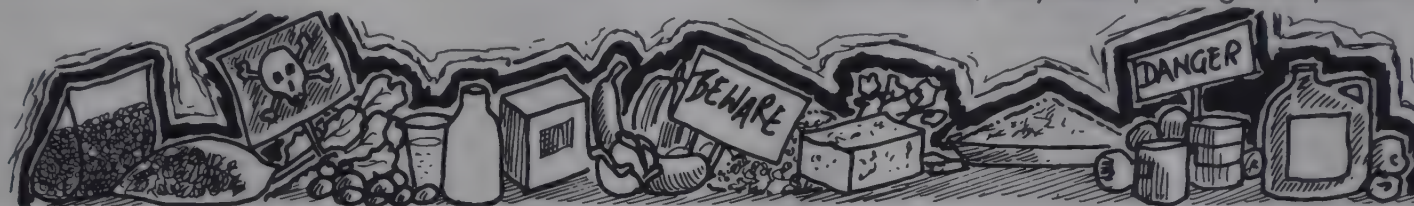
Excessive residues of DDT have been found in various oils: from 5 to 7.1 ppm in groundnut oil, 22.1 to 25.7 in mustard oil, 10.0 to 12.1 ppm in sesame oil and 9.3 to 10.6 in coconut oil. These levels are much higher than the tolerance level of 3 ppm.

Milk and Milk Products:

In Ludhiana, sixty samples of milk were found to be contaminated with DDT and 73 per cent of the residue was much above the tolerance level. DDT and BHC residues were found in all 112 samples of bovine milk collected from four villages of Sangrur district in Punjab. Two were sprayed with BHC and two with DDT under the NME programme. Further, the feeding of DDT-contaminated cotton seeds to milching buffalo might also have led to the increase in DDT residues.

Vegetables:

Out of 313 samples of fourteen types of vegetables assessed in Bombay, nearly half were contaminated with residues of BHC, Lindane, Aldrin, Dieldrin, Heptachlor, Endrin and DDT. Similar tests have also been undertaken in Hyderabad and Delhi with similar results. It was also found that harmful pesticide substances were not adequately packed. Rather than encased in tin containers, they were packaged in plastic bags.



serious health hazard. Contributing to the pesticide problem is the fact that neither processed foods nor bulk fresh produce are labelled with pesticide 'ingredients'. The consumer thus has no way of knowing which pesticides were used, much less whether they might pose health hazards if ingested at low levels over an extended period of time. Toxic residues are being increasingly found in consumer products such as cereals, edible oils, milk, fruit and vegetables (see Box 15).

Road Accidents

Over 40,000 persons are killed and 1,75,000 injured in road accidents each year, an average of 600 casualties per day. These mind-boggling figures were the official statistics for the year 1986.

The total number of road accidents increased from 1.14 lakhs in 1970 to 2.28 lakhs in 1987, an accident rate higher than that in developed countries, and one that studies have shown to be on the increase. The five metropolitan cities of Bombay, Bangalore, Calcutta, Delhi and Madras account for about 30 per cent of total accidents in the country.

Accidents in urban areas, especially those involving motor vehicles, are on the increase. Madras accounts for about 5,000 accidents a year, of which about 400 prove to be fatal. In Delhi the number of persons who die in road accidents is four times the number killed in murder cases.

Road accidents are caused essentially by the interaction of vehicles, road users and road conditions. According to statistics, driver error is responsible for the

majority of the accidents, but deeper analysis will show that environmental conditions and poor road design are indirect causes in many situations as they influence driver behaviour.

A successful approach to road safety, therefore, lies in improving road conditions in a manner that human error and misjudgement are reduced to the minimum. Engineering measures in road safety are applicable at the macro level during urban and rural road network planning and design, and at the micro level when detailed engineering drawings are made. Highway engineers should design roads in such a way that the drivers are never taken by surprise or experience any ambiguity.

In a country such as ours where resources are few, a plan must be evolved for the maximum utilisation of our health services towards the treatment of accident victims. With this in mind the centralised Accident and Trauma Services for the city of Delhi was put into operation in 1988. It is imperative that such services be initiated in all metropolitan cities in our country. The observance of Road Safety Weeks also helps focus the attention of all concerned towards various aspects of improving road safety.

Social Diseases and Addictions

There are a number of social diseases and addictions reinforced by the environment of urban areas. Some of the most serious relate to sexually transmitted diseases. Others like tobacco hazards (Box 16) and alcohol poisoning (Box 17) are also causing nation-wide concern.

Sexually Transmitted Diseases

The most researched area with regard to women prostitutes is sexually transmitted diseases (STDs). A team of doctors at the KEM hospital, Bombay, conducted a study on STDs in 1978 and found 67 per cent of prostitutes and 26 per cent of 'call girls' to be VDRL positive. The health camp organised by the Indian Health Organisation in June 1982 in Kamathipura, Bombay, revealed that 90 per cent of the prostitutes who attended it suffered from sexually transmitted diseases, many of them from more than one disease.

STDs can be a problem for many women whose husbands have multiple sexual partners, who often infect the prostitutes as well as their own wives. STDs result in the devastating degeneration of women's health. Besides the physical pain and suffering associated with these infections, a large proportion of women are left with scarred reproductive organs resulting in recurring infections, impaired fertility and even complete sterility. Syphilis and gonorrhoea are the most common forms of STDs. Syphilis can cause the destruction of the brain tissue and the spinal cord and gonorrhoea affects the urethra and the bladder.

Box 16

TOBACCO HAZARDS

India is one of the principal tobacco producing countries, next only to China and the USA. Tobacco is cultivated over an area of 4 to 4.5 lakh hectares with annual production ranging from 450 to 500 million kg. Forming 13 per cent of total world production in 1987, the average yield per hectare has increased from 750 kg (1960-61) to 1,199 kg (1987-88).

Tobacco products are an important source of foreign exchange earnings. During 1986-87, Rs 171.9 crores in foreign exchange was earned through the exports of unmanufactured tobacco, manufactured tobacco (i.e., *beedis*, cigarettes, chewing tobacco, snuff, *zarda*, scented tobacco, etc.), nicotine, sulphate and tendu leaves.

Tobacco contains about 4,000 chemicals, of which 438 can produce cancer, the most dangerous being nicotine, tar and carbon monoxide. Tobacco-related deaths in India have been estimated at 0.8 million per year, the equivalent of twenty jumbo jet crashes per day! Even this is likely to be an underestimation in light of recent findings on mortality caused by passive smoking or inhalation of cigarette smoke by non-smokers (Dr. K.S. Reddy, Department of Cardiology, AIIMS).

Chewing of tobacco or a mixture of tobacco and lime is largely responsible for

oral cancer and pre-cancerous conditions. Dr Bhatt, a prominent dentist in Bombay, has found this to be true in India and some Southeast Asian countries as well. Even *pan masalas* are causing pre-cancerous conditions in the form of oral sub-mucous fibrosis, a condition in which the patient gradually loses the ability to open his mouth. Although there are no surveys on the adverse effects of chewing tobacco, about 45 per cent of addicts are estimated to be prone to pre-cancerous conditions.

According to a dentist in Ahmedabad, the majority of mill workers in the region were found to be suffering from cancer of the mouth during an examination carried out under an oral can-

cer research project several years ago. The mill workers admitted that they chewed *pan* with tobacco and also consumed a mixture of 'quid and lime'.

According to the WHO, India may be heading for a tobacco epidemic within five years. Nearly 50 per cent of the male population over the age of 15 smokes, one-fifth of the 28 lakh persons who die each year the world over due to tobacco-related diseases are Indians.

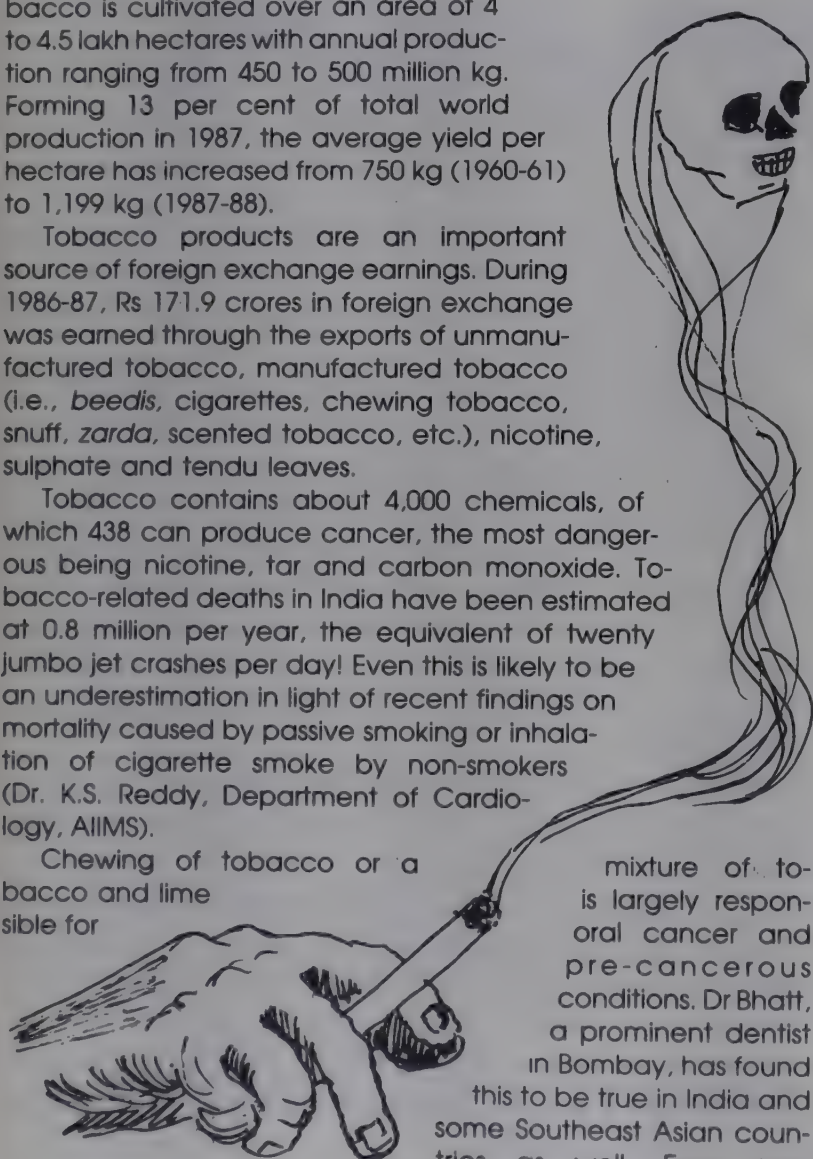
It has been proved that smoking has a deleterious effect on health and it has become the most prevalent form of drug dependence. Nicotine is an alkaloid that affects the central nervous system and is probably the cause of the smoker's dependence on the habit. When a cigarette is lit, the nicotine is transferred from the burning tobacco to the smoke, where it mixes with minute droplets of tar. As the smoke is inhaled the nicotine is absorbed easily into the bloodstream.

The main cause of cancer in the composition of tobacco smoke lies in the chemical substances known as polycyclic aromatic hydrocarbons and n-nitrose compounds. Elements of the latter are regarded as a potential health hazard when they appear in food and if they appear in a ratio of one part per billion. N-nitrosonornicotine is present in unburnt tobacco and in the smoke. It has been reported that smokers who developed lung cancer were found to have higher concentrations of aryl-hydrocarbon hydroxylase than the cancer free controls.

There are irritant substances in the smoke which cause the bronchial glands to secrete mucus in greater quantities. Carbon monoxide forms 1 to 5 per cent of tobacco smoke. When absorbed into the blood, it blocks the transport of oxygen to the tissues, including the brain. In smokers with a history of angina, a heart condition associated with reduced oxygen supply, even a low concentration can further affect their capacity for exertion and exercise. It has been found that exposure to carbon monoxide can increase the permeability of blood vessels to cholesterol. Research has also shown the relationship between the levels of carboxyhaemoglobin in the blood and the presence of disease in the blocked vessels.

In a report of the Royal College of Physicians, *Smoking and Health Now*, published in 1971, it was estimated that in countries where smoking is established and widespread it is responsible for 90 per cent of deaths from lung cancer, 75 per cent of deaths from bronchitis and 25 per cent from heart diseases in men under 65 years of age.

The most recent cause for concern is the large number of Indian women taking to cigarettes without recognising the drastic physiological changes that threaten them. About 25 per cent of women above 15 years of age smoke and it is estimated



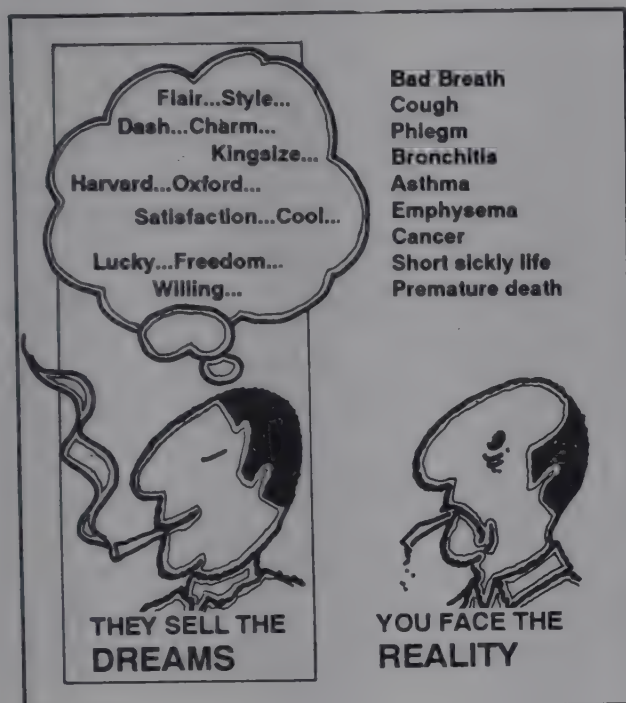
that over 50 million run the added risk of lung cancer or cancer of the throat, oesophagus, mouth, heart, or cervix. There are no estimates yet on the effect of passive smoking. According to an ICMR study (1982-83) there is sufficient evidence to suggest that smoking affects regular menstrual functions.

Dr Sobti, President of the Indian Society for Tobacco and Health, expressed his concern that pregnant mothers who smoked transferred nicotine to the foetus, causing the child to grow up with congenital respiratory afflictions. Nicotine can also be passed to the child through breast milk, making them susceptible to bronchitis and pneumonia. An increasing number of stillbirths and abortions are also being associated with mothers who are smokers. Smoking might also result in prenatal deaths, making children who are 200 to 300g underweight particularly vulnerable.

TOBACCO FACT-SHEET

1. Prevalence of tobacco usage

	Urban	Rural
- Male	45-71%	23-81%
- Female	11-17%	14-69%



2. Estimated tobacco users in India

- At least 100 million males and 50 million females.

3. Tobacco-related diseases

- Cancers
 - Oral cavity
 - Pharynx
 - Larynx
 - Lungs
 - Oesophagus
- Cardiovascular diseases.
- Chronic obstructive lung diseases.
- Tobacco and reproduction—low birth weight and premature babies, more abortions and stillbirths, menstrual irregularities, infertility.
- For positive smokers: increased risk of cancer, coronary heart diseases.

4. Magnitude of tobacco-related diseases at any point of time

- Tobacco-related cancers—4.05 lakh males and 1.8 lakh females.
- Coronary heart diseases—50 lakh, of which 20 lakh can be attributed to tobacco usage.
- Chronic obstructive lung diseases—48 lakh.

5. Mortality due to tobacco-related diseases

- 6.3 to 10 lakh deaths every year.

6. Total area under tobacco cultivation

- 4.0 to 4.5 hectares.

7. Employment generated

- 20,000 in cigarette and *beedi* industry.
- 7.5 lakh growers and curers of tobacco.

8. Economic gains

- Excise revenue Rs 1,557 crores; foreign exchange Rs 176 crores.

9. Health care cost for diagnosis and treatment of tobacco-related diseases

- Rs 2,418 crores.

10. Annual losses

- Rs 685 crores.

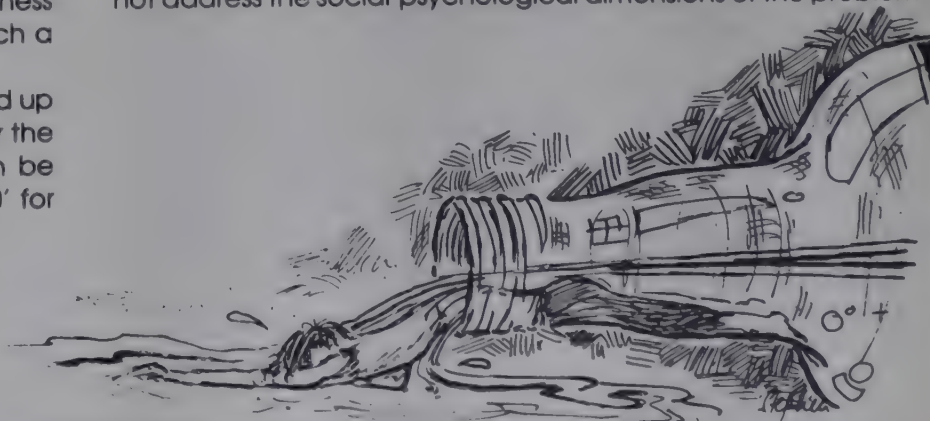
Box 17

ILLICIT ALCOHOL PRODUCTION

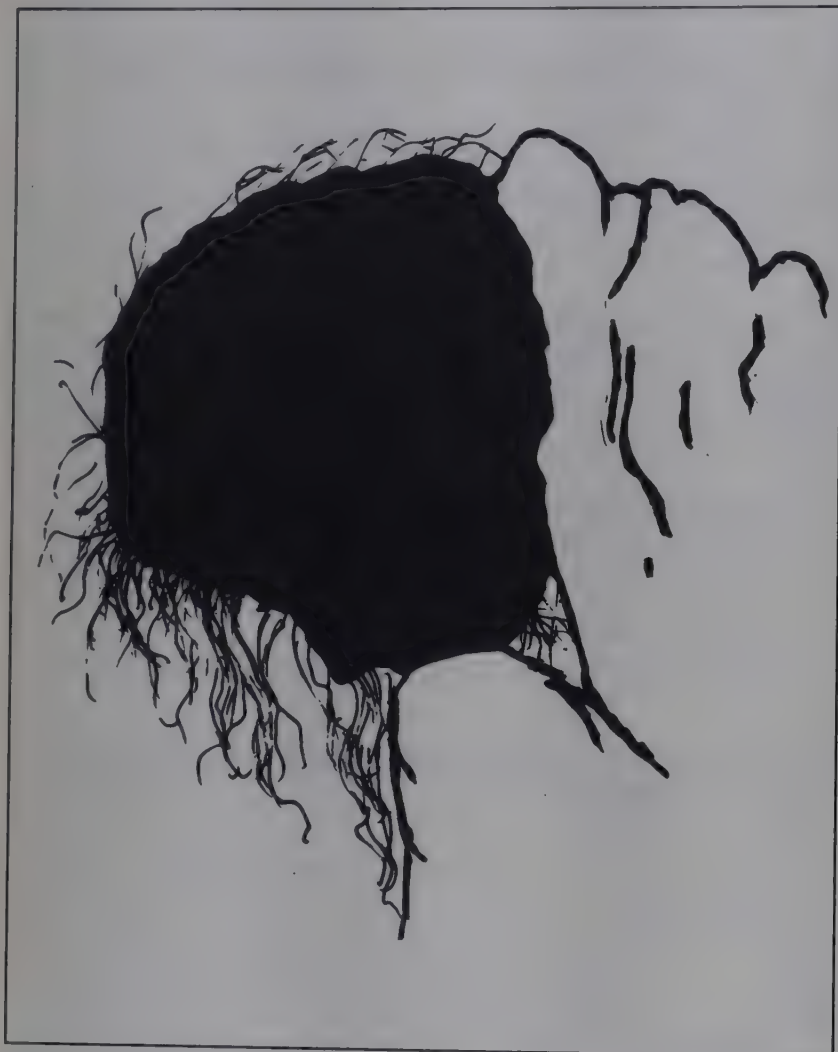
In August 1988, several parts of central Bombay were shaken by the worst case of alcohol poisoning that the city had seen in over ten years. By the end of August, 130 people had been affected, at least thirty-seven were dead and several were fighting for survival. How does the lucrative illicit liquor business operate in the city and why is there no guarantee that such a tragedy will not occur again?

Legally, someone in possession of illicit liquor can be fined up to Rs 500 and given six months in jail for a first offence under the Maharashtra Prohibition Act of 1949. This punishment can be raised to 'over one year in jail' and a fine of 'over Rs 1,000' for the third offence. This can hardly be considered a deterrent, given the level of profits that this business offers. Besides, it takes three to four months for the chemical analysis of the seized liquor to be finalised and a charge-sheet to be prepared, and several more years for the case to be heard in court.

One suggestion put forth was that the government reduce taxes on country liquor. If some of the profits from the illicit business could be diverted to the government exchequer, it could make up for what it would lose in taxes. This, however, does not address the social-psychological dimensions of the problem.



With the tremendous adjustments that have to be made in the new industrialised social environment, an upsurge of drug addiction is frequently found in poorer neighbourhoods. For every male drug addict in Kabir Basti, a north Delhi slum, last year, there are five or more today. The nearest de-addiction clinic is 4 km away and can admit no more than twelve persons at a time. In any case, most of the addicts say they have never thought of taking treatment. They do not have to go far for the drugs as they are available in their locality itself. Most of the addicts have also become peddlars of the drug as they are unable to earn a livelihood any other way.



These findings were revealed by a study of 1,300 households conducted by students of the nearby Hans Raj College. They were trained for the job by the Delhi police. There are nearly 2,000 males in Kabir Basti above the age of 15. The police admits to only forty-three of them being addicted to 'smack', but the Samiti is certain this figure is far below the reality. Tragically, the majority of addicts are in their 20s, a third are in the 30 to 40 age group. Twelve per cent were found to be regularly taking the milder narcotic, *ganja* (cannabis).

Another common feature of the social environment is the high rate of alcohol consumption and the illicit production of alcohol (Box 17).

Health in the Workplace Environment

Occupational Accidents and Injuries

Traumatic injury and death are the unfortunate by-products of technology. In contrast to chemically-induced risks, there is a curious tolerance to accidental death and injury, perhaps in part because it is associated with human fault.

The number and nature of the accidents in an industry reflect the nature of the production process, production relations, characteristics of the workplace environment, and workers' roles and rights in the production process. All accidents do not cause injuries. Reportable injury is defined in the Factories Act as non-reporting to duty for more than forty-eight hours (seventy-two hours in the case of mines) due to bodily injuries sustained out of work. In our country, these reports are available only for the organised sector, which accounts for barely 5 per cent of the total workforce. No data is available from the agricultural sector, and from the cottage and home industries where accident rates are known to be high.

If one extrapolates evidence from various spot studies and population statistics, it is clear that the number of people killed due to occupational injuries would be in the region of 150,000 per year, almost 100 times more than official statistics. The total number of permanently disabled and seriously injured could be anywhere in the region of 15,000 to 30,000. Similar calculations put the expected number of workers killed in manufacturing and mining industries at around 6,000 to 18,000 per year, and in the agricultural sector at 100,000 per year, with 10 to 20 lakh non-fatal injuries. These are extremely high figures by any standard.

Number of Accidents per 100 Workers Employed in all Manufacturing Industries

India	—	60.2
UK	—	34.2
USA	—	24.74

Industrial Injuries in India: (1981)

Occupation	Fatal No.	Injury %	Non-fatal No.	Injury %
Factories	687	0.05	332885	26.65
Mines	239	0.32	2853	3.85
Railways	311	0.20	24320	15.31
Ports	28	—	1312	—
Total	1265	—	361100	—

Source: Labour Bureau, Government of India, 1983.

The situation is further complicated by the fact that many developing countries are rapidly industrialising. Often a new technology is introduced and widely disseminated before appropriate safety measures have been developed. Once this has happened the increase in productivity which usually accompanies new technology



ensures that it remains, whether or not it is hazardous. For example, grain threshers were introduced in north India a few years ago. Little has been done to solve the problem of workers crushing their hands in accidents each year.

In determining the cause of accidents, the individual is often the victim in more ways than one. Lack of skill, apathy, inattentiveness and proneness to accidents are usually thought to be the causes.

If conditions at the workplace are taken into account, one of the most important factors that is neglected are production relations, which determine the conditions of the workplace, as also the man-machine, man-man and man-environmental relationships. While factors such as work schedule, remuneration, and job satisfaction may well determine the accident rate in a factory to an extent, other factors like national economic structure, the huge pool of unemployed labour, global economic competition and the state's policies and legislations are also important.

Hazardous Industries and their Impact on the Local Environment

As mentioned earlier, with the rapid expansion of urbanisation and industrialisation, people are becoming increasingly concerned about chemical pollution as an emerging health hazard. Environmental health is equated with the regulation of organic rather than chemical waste. This is largely due to the difficulties in diagnosing reactions to toxins and inadequate information on the chemical properties of toxic substances. In fact, according to Professor Rao, an eminent engineer, we have little or no data about the toxicity of many chemicals which have been synthesised over the last few decades. Gareth Green of the Department of Environmental Health Services, Johns Hopkins University, corroborates this: 'The lack of basic toxicology information on thousands of these chemical substances, even those that are used in one-millionth pound quantities, limits the progress that can be made in chemical substances control and imposes a massive challenge to environmental health research in the 21st century.' According to the United States National Academy of Sciences, the proportion of chemicals with data permitting complete assessment is zero, and permitting partial assessment is 11 per cent. No information is available on the toxicity of 80 per cent of all chemicals used in industry. For this reason, medical officials too are not equipped to measure the intensity of chemical pollution on environmental health in any community.

The chemical industry contributes about 7 per cent to the GNP. It accounts for roughly half the industrial output and employs 6 per cent of the industrial labour force. In 1987-88, exports totalled about Rs 13,000 crores, with a significant annual growth rate. Nearly 5 million chemicals have been synthesised in the last forty years at a rate of 10,000 new ones each month.

As we watch this sector grow, it is imperative that we ask ourselves a few questions: of the chemicals that we manufacture, about how many do we have complete information? How many plants have adequate facilities to deal with the toxic wastes produced or adequate safety measures to deal with possible accidents? While the chemical industry is a booming one, it also poses several hazards. It is dangerous for:

- those who work within chemical manufacturing industries
- those who use chemicals in other manufacturing processes
- those who live around the area, due to the possibility of major accidents and also environmental pollution through toxic effluents in the air, water or land
- the family members of workers both because they tend to live in and around the premises and also because of the physical and chemical pollutants that the worker carries home, not to mention psycho-social trauma

— those living miles away from the actual site of contamination because it alters the air and water for several miles (see also Chart 1)

While statistics on injuries and deaths on industrial sites are highly inadequate, those that exist reveal that the chemical industry kills more workers every year than any other. The primary cause of deaths is explosions. Spills and leakages are also common and are usually not even reported. Industries generally discharge acids and noxious gases. While the organic material breaks down in water, other materials do not. Thus, industrial treatment plants are essential and where they do not exist, effluents pose very grave dangers to human health. Treatment plants set up over the last century were effective for non-chemical waste cycling and composting but with the large-scale introduction of chemical processing and manufacturing, treatment of hazardous waste is becoming an impending priority.

In sum, the hazards of chemical pollution are wide-ranging and not usually acknowledged. This is particularly the case among communities that do not have the basic amenities for living. Apart from ground-water contamination, personal and environmental hygiene cannot be maintained at standards to which the people are accustomed. This leads to absorption or ingestion of chemicals that may have short- or long-term repercussions on the lives of human beings.

Toxic Hazards

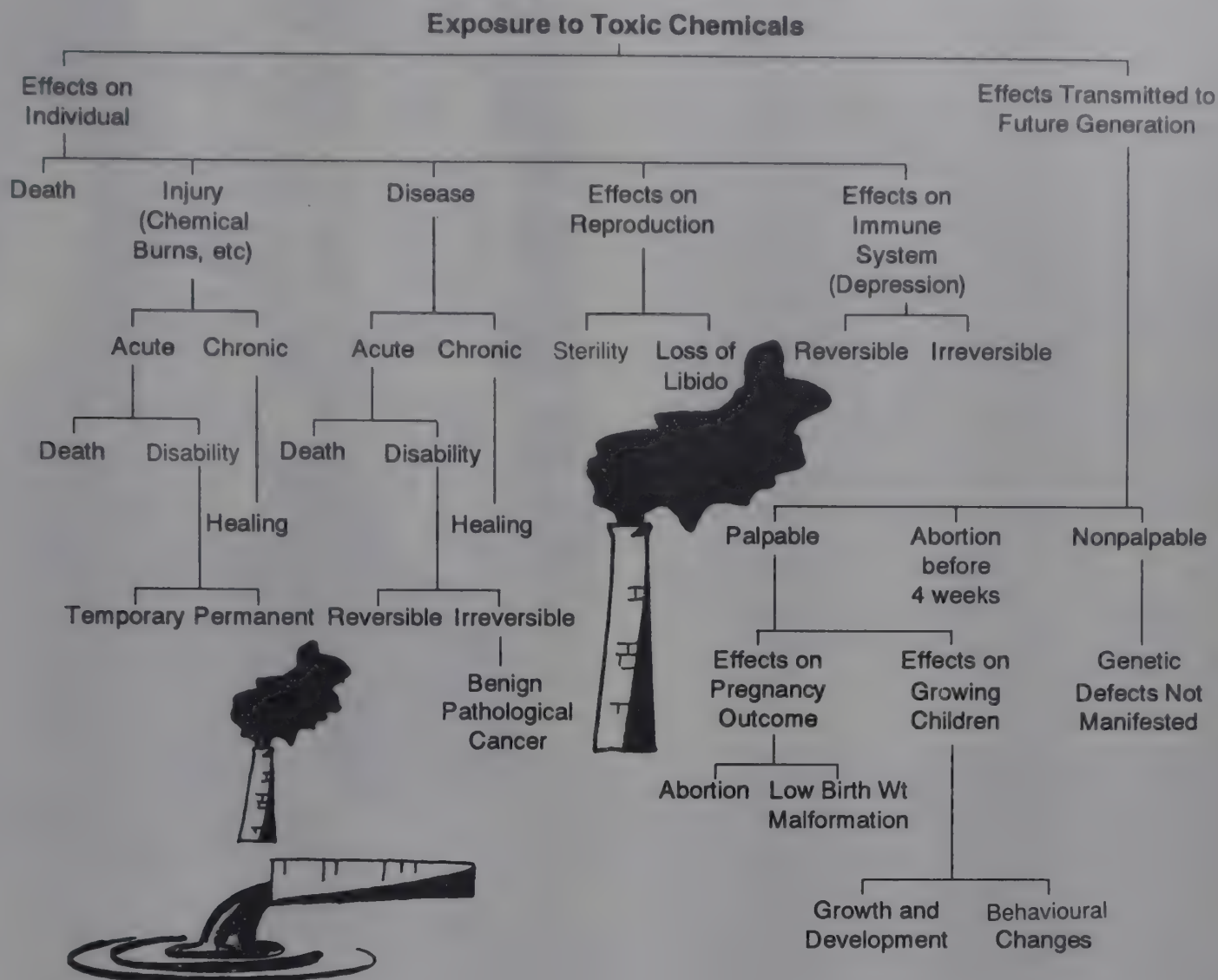
Many incidences of toxic dumping exist in our country, given the poor legislation and implementing machinery. The only legislation which has some bearing on regulating these toxins is the Factories Act. Since the 1984 amendment to this Act, some regulations have been laid down governing disposal of wastes and effluents, although the effect of this on actual practice is as yet negligible. After the Bhopal tragedy, another amendment was made to the Act in which (with reference to twenty-nine hazardous processes or industries) site selection, right to information, disaster management, exposure limits and the worker's right to be warned of imminent danger were given due importance. This amendment recognised the fact that the hazards posed by dangerous chemicals extend out of the immediate factory vicinity and into the surrounding environment.

According to the amendment, a standing Site Appraisal Committee was to be established, headed by the Chief Inspector of Factories, who would make the assessment and process applications for the establishment of factories. But the law does not include local residents in the decision-making process, unlike in many European countries. Furthermore, although the amendment binds the employer to provide to workers, factory inspectors, local authorities and the local public



CHART 1

HAZARDS OF CHEMICAL INDUSTRY



information in connection with toxic exposure during manufacture, transport, storage and other processes including waste disposal, it provides no clear-cut guidelines as to precisely what information is to be given and specifically to whom. After the Bhopal tragedy, the government identified a few hazardous processes and took some measures to control them. In association with the International Labour Organisation (ILO), it launched a Rs 2.3 crore project to identify major hazardous factories. Three hundred and seven major hazardous industrial units have already been identified in thirteen states. The highest number are in Gujarat. The same project has also identified forty-five hazardous chemicals, eight of which are stored in a large number of units.

The aim of this project is to 'strengthen the national system for the prevention of major occupational accidents involving one or more hazardous substances and processes which have the potential to result in major accidents'. Under this project, a Hazards Control Advisory Division has been established under the Central Labour Institute, Bombay. The project began in Decem-

ber 1986 and the first phase was to be completed by September 1990 when the ILO was expected to withdraw. It was also supposed to formulate emergency plans, both on-site and off-site, to deal with major accidents. It is unfortunate, however, that little work had been achieved apart from the training of a few factory inspectors.

Apart from the obvious need for legislation to deal with these hazards, there is also the need to evolve environmental protection policies that are specific to local conditions. This is vital given the fact that hazardous industries impinge on natural physical conditions. In other words, we cannot limit toxicity to the immediate area where the toxic chemicals are being either manufactured or handled—we have to think not only of the factory itself, but the area surrounding the factory and the workers' homes. Secondly, the impact of these toxic materials will vary with the nature of the surrounding environment.

We can say with some conviction that there is a set of natural physical factors that may substantially increase

the potential of a polluting source becoming an environmental hazard. One such factor is the degree of water available to carry away effluents and the other may be the topography of the land which affects its ability to drain itself. Given the fact that the chemical industry produces highly toxic wastes and uses primitive disposal methods both these factors are crucial.

Udaipur, for instance, is a drought-prone area, where it is particularly necessary to safeguard scarce water resources. Because of the growing shortage of water resources, industrial planning will need to consider pollution control methods that may be different from those used in an area that has sufficient water resources.

The problem of water scarcity was illustrated in the recent outbreak of toxic poisoning in Bitchiri in August 1988. According to news reports, sixty wells were contaminated, hundreds of livestock died and 500 acres of agricultural land became uncultivable. More terrifying, however, was the fact that even drinking water was no longer available within a 5 km radius. A drilling rig commissioned by official agencies revealed that the water was polluted to a depth of 200 feet! This acute toxicity was caused by effluents from five Udaipur-based companies producing a chemical commercially known as H-Acid. It was later discovered that this chemical was constituted by sulphonation and nitration of naphthalene and had been entering the Udaisagar canal for more than a year before it was detected by the central government.

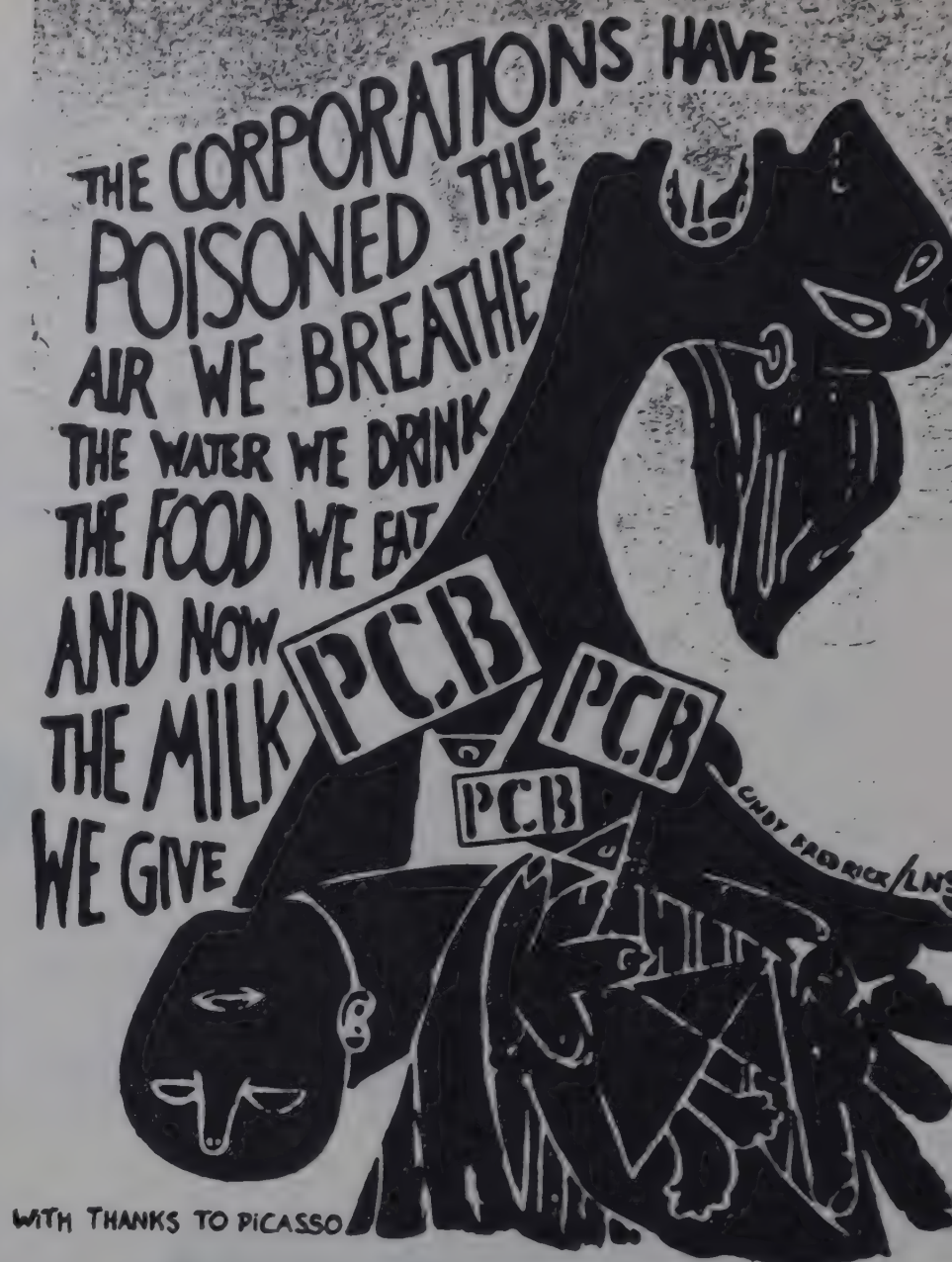
This is a single incident. Yet, it represents well the havoc pollution can cause in semi-arid and arid city areas like Udaipur where water sources are already heavily polluted and over-stressed. Another example is of the river Berach which flows through Udaipur carrying effluents from thirty-five large factories (zinc, fertiliser, cement and other petrochemicals). It is so polluted that fifty villages downstream have been affected both in terms of a decline in crop productivity and in terms of chronic and acute toxicity. Just as people are affected outside the city, the 8,000 residents around Pichola lake in Udaipur too are endangered potentially. The lake has become highly polluted and consequently the quantity of water available is greatly reduced. Currently, the city authorities are looking to the Jaisamand or Devas lakes as new sources of water.

Shockingly, this state of affairs has raised little concern amongst those who ought to know better. What could be more damning than this statement from the National Environment Engineering Institute: 'No information is readily forthcoming on the actual method of their (the toxic) disposal.'

Air Pollution

Another major hazard is air pollution:

- There are 15,000 small, medium and large industrial units registered in Delhi (there are several unregiste-



Source: *International Women and Health Resource Guide*

- red units, many of which have dangerous levels of emissions)
- From the Indraprastha and the Badarpur Thermal Power Stations in Delhi, about 180 tonnes of fly ash and 70 tonnes of sulphur dioxide are emitted into the atmosphere each day along with a black trail of soot
- In the new developments of south Delhi (i.e., Qutab Enclave, South City), the Aravalli Range is being destroyed. The dislodged dust is being blown all over the city
- About one million vehicles are on the roads in Delhi. From the exhaust of 500,000 vehicles about 400 tonnes of pollutants are emitted every day, making up about 34 per cent of the dust and smoke

These facts give us an idea about the quantity of suspended particles in the atmosphere. Unless we can relate this to our health and well-being, it will be well nigh impossible to derive a holistic development strategy.

In a recently concluded survey of three government hospitals in the Trans-Yamuna area, random interviews from the OPDs indicated that 30 per cent of the patients,

half of them small children, suffered from respiratory ailments. After circumspect questioning, it was believed that air pollution is a key problem in slum areas and results from close proximity to factories, the effect of passive smoking, ill-ventilated homes made worse by indoor cooking with the use of dung or wood fuel, excessive amounts of dust at workplaces to which children are often exposed, and proximity to polluting industrial units.

A major source of air pollution is the cooking of food in houses with inadequate ventilation. Recent evidence points to this form of air pollution within homes as the cause of millions of deaths every year. The burning of cooking fuel indoors causes heavy smoke in the atmosphere, exposing the women to these toxic fumes. As over 90 per cent of the households use wood and dung as fuel, the scale of the problem is immense.

The ill-effects of wood smoke are clearly evident from the heart disease, Cor Pulmonale, in which the right lower chamber of the heart enlarges and fails because of a disorder in the lungs. A survey undertaken over a period of fifteen years on hospital patients in Delhi found a surprising similarity in the incidence of Cor Pulmonale in both men and women, even though 75 per cent of the men were smokers as compared to only 10 per cent of the women.

Any condition which results in reducing the blood's capability to carry oxygen to the tissues, like anaemia, will also make a person more susceptible to carbon monoxide toxicity. This is particularly hazardous for Indian women, who have lower haemoglobin reserves than men, which not only makes them more prone to anaemia but also more vulnerable to lower doses of carbon monoxide. During pregnancy, too, there is additional demand on the haemoglobin level. This exposure could also affect the urban child, leading to reduced birth weight and increased prenatal death rates. It is estimated that in India 40 to 60 per cent of preschool children and 25 to 30 per cent of women in the reproductive age suffer from chronic lung diseases. Respiratory diseases often prove fatal in the case of young girls and women in India.

Besides adding to a wide range of respiratory disorders, air pollution is also causing changes in our atmosphere and destroying the ozone layer which in turn is affecting people's resistance to the ultra-violet rays of the sun. As a result, malignant melanoma or a variety of skin cancer is becoming more common, and is particularly hazardous for the majority of labourers in India who are continuously exposed to the sun. A higher incidence of cancer in future is forecasted if ozone depletion is not brought under control.



Health in the City Environment

Sewage Disposal and Treatment

One of the basic planks of environmental health is the provision of clean water. Sewage disposal was introduced in many cities in the early part of the 20th century. Public Health Engineering Departments (PHELS) were set up in Bengal in 1913 and in Uttar Pradesh in 1917. Sewage composting was done in Madurai as early as 1910, and the sewage system of Calcutta was first completed in the 1920s. Under the colonial administration, however, selective colonies were given insufficient amounts of manpower and capital which prevented local councils and town authorities from making much headway. At the time of Independence when the Bhole Committee was convened, out of forty-eight cities that had a population of a lakh or more, coverage for sewage disposal did not exceed 3 per cent. In the light of these statistics, the Government of India has done well over the last forty-four years. Currently, 217 out of the 3,119 urban centres are either partially or fully covered by sewage facilities including the disposal and treatment of waste water.

This coverage does not, however, include the disposal of night soil. According to the 1971-72 National Sample Survey, for 30 per cent of the 200 million in urban areas there are no facilities for the disposal of excreta. Another 33 per cent have some form of latrines (21 per cent use common flush toilets; 7.2 per cent use flushes connected with sewers and 5.7 per cent use septic tanks).

Many towns in India have not been covered by the sewage system primarily because of the prohibitive costs involved. Since the Sixth Plan, the central government has been providing finances for sewage disposal, but this is only a matching grant that can be allocated only if sufficient local resources are available. Hardoi, for instance, is a small town in Uttar Pradesh where 80 per cent of the 67,000 population consists of low-income households. Industrial growth in the town has been poor, and owing to the lack of local resources, water supply currently serves about 60 per cent of the town's population. Most of the drains are not permanent, and during the monsoons they frequently flow out onto the streets. Without a riverside location, drainage and sewage have proven to be extremely costly.

Even in cities which have seen a certain level of industrial development, urban sewage is a problem. Kanpur was once a thriving city owing to the tanning and other local industries. It still has 151 large tanneries, but is widely regarded as a poor city where civic services have been grossly neglected. There has been little expansion in the urban infrastructure over the last few years, with the result that 47 per cent of the people live

in slums known as *ahatas*. In addition, Kanpur has a very high population density—about 1,210 persons per sq hectare. It is evident, therefore, that the improvement of basic services does not necessarily follow automatically if municipal revenue is available.

Industrial Effluents

Kanpur

In spite of the Water (Prevention and Control) Pollution Act of 1974, and the Air (Prevention and Control) Pollution Act of 1981, it has been considerably difficult to regulate the effluents from tanning and other industries. Tanneries discharge various solids which are produced during different tanning operations. Salt dust, if stored in heaps outside the factory, is likely to be washed away during rains and may cause ground-water pollution. These operations also emit odorous gases, particularly hydrogen sulphide, and smoke and dust into the air.





Durgapur

Another city that has sufficient internal revenue to generate the infrastructure for the treatment and disposal of waste is Durgapur, one of the largest industrial centres in eastern India. It is an entirely planned city which was built in the early 1970s. In spite of the pollution regulations that were built into the plan, the city still has an inordinate amount of dust particulate matter in the air, and the river Damodar which runs through it is highly toxic.

In detailed studies carried out by different universities and institutes in the area, it has been found that between the three thermal power plants, 2,100 to 2,800 tonnes of ash by-product is produced in plants operating at 865 MW, primarily because of the inoperative filtration systems (known as ESP or electrostatic precipitation systems). Environmentalists claim that this coal dust has little sulphur nitrate in its composition, which obviates the formation of acid rain, but the coal dust continues to be a health hazard both for the people and the environment. Studies have shown the suspended particulate matter to be much higher than the permissible limit.

Water pollution in Durgapur is also a major problem. As the only water source is the Damodar and as there is little in the way of subsoil water, this poses a major health problem. The water is highly toxic with dangerous pollutants such as mercury, lead, chromium, arsenic, phenol, oxide of nitrogen, to mention a few (see Table 4). The river also picks up the untreated effluents from the mining sites in the Dhanbad-Asansol mining areas which are in themselves dangerous.

Much has been said about industrial pollution in the earlier sections. With studies showing the dimensions of the problems in an industrial

city like Durgapur, it becomes clear that pollution emissions (air) and effluents (water) must be factored into urban planning.

Table 4

<i>Pollutant</i>	<i>Permissible limit</i>	<i>Level of discharge</i>	
Total suspended solids	100 mgm/lit	DSD EIPW DCL	856 A 304 390
PH	5.5 to 9.0	EIPW ASP HFCL A	1.8 4.0 9.5
COD	250 mgm/lit	DSD ASP A	1986 405
BOD	30 mgm/lit	DSD PCBL DCL	310 68 80
Mercury	0.01 mgm/lit	DCL	0.25
Cyanide	0.2 mgm/lit	DPL DSP(ii)	10 1.3
Phenol Cancer	1.0 mgm/lit	EIPW DSP(ii) DSP(iii) DSP(iv)	5.8 11.0 10.0 6.6
Oil and Grease	10 mgm/lit	DSD EIPW ASP DSP(i) DS(v)	277 54.4 22 28.2 78.1
Ammoniacal Nitrogen	50 mgm/lit	HFCL	1515

DSD	=	DURGAPUR STATE DAIRY
EIPW	=	EAST INDIA PHARMACEUTICAL WORKS
DCL	=	DURGAPUR CHEMICAL LTD
ASP	=	ALLOY STEEL PLANT
HFCL	=	HINDUSTAN FERTILISER CORPORATION LTD
PCBL	=	PHILIPS CARBON BLACK LTD
DPL	=	DURGAPUR STEEL PLANT

Conclusion

Health workers and health planners are aware that the changes in the environment required for better health can only in small measure be built into preventive health care programmes. Preventive health care programmes over the last twenty years have been planned in a manner to reinforce a more salutary and 'sustainable' physical and social environment but these measures have not gone far enough. Owing to the entrenched inequalities that prevail in the Indian state, the possibility of environmental changes in preventive health may be limited. The real contribution lies in educating the people and making them more aware of their own environment. The process of 'objectifying' their environment or putting it within a context to which the people themselves can relate will have its own impact on their health.

If we are to disseminate this information and education to others, it is necessary for us, the outside interven-

tionists, to know something about the policies of environment and health. At the very least, we can anticipate that the environment in which health infrastructure is being established may contribute to a more sustainable environment. Sustainable environment, we have said, refers to the maintenance of the natural heritage in such a way that it can continually regenerate health. It also means that the social environment has to provide the minimal conditions conducive to people's health and productivity so that destructive practices of resource use can be minimised.

As already discussed in the Introduction, part of the problem lies in the fact that the environment is viewed mostly as an external and physical entity with nothing but a functional relationship to people. Concomitantly, as is evident from earlier examples (see Box 2), environmental impact assessment does not sufficiently take into account the social costs (and hence health) of infrastructural development. Nor have we reached a stage where we fully understand the irreparable damage that infrastructural development projects have on the environment and on the long-term health status of our people.

In an age when the shortage of natural resources is itself causing so many health problems, it is necessary for the Health Ministry to provide 'coping mechanisms' for people whose dependence on resources is currently in jeopardy. In this way the state and NGOs alike could play an important role in safeguarding people's health and well-being in various physical and social environments.



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Indigenous Health Services— The State of the Art

Foundational Debate

Introduction

A major problem that non-Western societies have to contend with in any serious evaluation of their indigenous science and the suitability or otherwise of modern science and technology in the West, is the common claim of all Western scientists and philosophers that, 'after all, science is one, universal and unique'. Thus, while it may be possible to conceive of alternative methodologies, theories and practices in other domains of human knowledge and experience, such as music, linguistics, logic, art and politics, there is no such possibility with regard to science. Beginning with this epistemological position, it is impossible to initiate a debate on 'alternatives in science' for the very idea is dismissed as an absurdity. And, given the continuing domination of the West, non-Western societies are left with no option but to accept modern science and technology as the universal well-established system and to derive legitimacy for their own traditional system by demonstrating how well the latter conforms to the methodology, theory and practice of the former. There is, thus, an urgent need to make a serious effort to evolve a new approach to the question of alternatives in science

by first examining the Indian epistemological positions on the issue. This would indeed be possible if Indian scientists and philosophers (trained in the Western tradition), and scholars of Indian *shastras* (the various codified systems of Indian intellectual tradition) interested in examining this question seriously are given encouragement.

The foundational theories, principles, concepts and categories upon which indigenous health science is based are indeed different from Western medical science. While indigenous science is built up on a holistic perspective—as seen in the theory of *pancha mahabhuta siddhanta*—Western foundational theory is atomistic; while the former rests on such philosophical foundations as *samkhya* (one of the six schools of Indian philosophy), *vaishesika* (the system of logic used to explain ayurvedic propositions), and *yog* (the *shastra* which explains the working of the mind and its relationship with the body), the latter rests on various schools of positivistic thought. The bodies of knowledge that are built up on these different foundations necessarily differ in form, structure, categories and concepts. This foundational

Box 1

Question: If the Indian system of medicine indeed constitutes an independent body of knowledge, how is it that they seem not to have made many of the outstanding discoveries which have been made by modern medicine—blood circulation, electrical activity in the nervous system, micro-organisms which cause disease, etc.

Answer: With the rise of modern science since the 17th century and the onset of worldwide colonialism, modern science came to be regarded as 'universal'—that is, the laws and theories of modern science were seen to be applicable at all times and under all conditions to describe all phenomena. Furthermore, it was regarded as 'the unique' method which supersedes all other previous methods as an approach to describe and understand nature. However, this is purely a myth of recent origin and has no substantiation in fact. There are various possible methods and approaches to understand natural phenomena, each of which can be valid in its own domain. This has been appreciated and understood in other areas of human endeavour such as literature or music.

For example, while everybody would grant that Mozart and Tansen were great musicians and composers, nobody would think it meaningful to pose the question—'If Tansen were such a great composer, why did he not compose symphonies or sonatas?' Yet, it is precisely these types of questions that we seem to encounter in the area of science and technology because of the myth of the universal and unique nature of modern science and technology.

difference is reflected in differences in the formulation of theories pertaining to causation of diseases, pharmacology and drug action, dietetics and nutrition, physiology, diagnostics, etc.

In indigenous pharmacology, for instance, better known as *dravya guna shastra*, the whole plant—or its parts: the leaves, stem, seeds, root, bark, fruit, flowers—is studied as a whole in terms of its in vivo effects on such parameters as *ras* (taste—there are six tastes, each indicative of the composition and properties of the substance, based on a theory of *Ras*), *veerya* (the potency of a substance), *vipak* (a post-digestion state of a substance), and *prabhav* (a unique pharmacological activity of a substance), and used as an active substance. Modern pharmacology, on the other hand, isolates an active chemical entity from the plant or its parts and studies its in vitro and in vivo effects on different parameters. Both approaches undoubtedly have their uses. The difference lies primarily in the fact that in indigenous knowledge systems the category of knowledge known as chemistry is absent. What exists is a holistic category called *dravya guna shastra*. If we believe the absence of chemistry to be a serious lacuna in indigenous science, we would have to concede that the absence of *dravya guna shastra* in modern science is as serious a lacuna. The point, however, is not one of lacunae or gaps in the scientificity of either system, but the fact that these differences arise from fundamental foundational differences which make unintelligible any simple comparison of the form, structure and categories of both systems.

Terminologies and Comparisons

In any comparative study of two sciences it is imperative to have the appropriate terminology and language for a dialogue. For instance, *vaatha* is often equated with the nervous system or nerve force and



pittha with the digestive system, enzymes, hormones and the heat regulating mechanism. While such an equation may work at one level, it often breaks down at other levels. Intellection, for example, is a function of *pittha*, representing a preponderance of *satwa guna*. In Western physiology, however, intellection would fall in the domain of the nervous system (cerebrospinal) which is equated with *vaatha*. The untenability of such an equation arises from the fact that the principles of classification belong to radically different orders. When Western physiology speaks of the nervous tissue, muscular tissue, epithelial tissue, etc., the principle of classification is anatomical, based on the structure of the component parts. In the triadic classification of *vaatha*, *pittha* and *kapha*, the basis is biological, based on the function correlated to the three *gunas*.

Experimental Method

The essence of the modern laboratory method is to isolate any problem from its environment, to eliminate its interlinkages with other diverse factors in nature, and to reduce it to the minimum possible number of controllable parameters. These parameters are then varied (usually one at a time) and their effects on the system studied.

In contrast, the traditional approach attempts to solve problems by taking them in their entirety, together with their interlinkages and complexities. This method of solving problems in their natural setting seems to be efficient in providing balanced solutions. Indian systems seek to systematise commonsense and to make it rigorous rather than destroy its essential unity in its multifacetedness. Thus, according to Charaka, science is

Box 2

Question: Modern science is found to be evolving and changing each day in response to newly-discovered data, attempting to provide solutions to new problems. However, there appears to be no such trend with regard to indigenous systems of medicine (ISM).

Answer: A basic difference in the two approaches must be understood at the outset. The approach to the study of diseases and their classification tends to be such that the basic classification or categories of ayurveda can hold good for all time. This is in contrast to the modern approach which uses categories and classes which require continuous and on-going revision and evaluation.

The subject of aetiology provides us with a striking illustration of this characteristic feature of Indian analytical thought. The belief that diseases are caused by agencies external to oneself is common in the aetiology of both ayurveda and allopathy, but the analysis of such agencies by the two systems highlights the characteristic features differentiating the two viewpoints. An analogy may perhaps serve a useful purpose in this context. We wish to classify the various invasions of India: we may do it in two ways—by classifying the invasions as those by land, sea or air; by classifying them as those by the Greeks, Scythians, the Muhammadans, the Europeans, and so on. The first classification is comprehensive and applicable for all time because all invasions must take place by one or another of these three modes, singly or combined. The second classification is applicable only to the present and the past and that too, only as far as it is known. And, if there are new invasions in the future by people other than those cited above, the list will have to be

added to. In the first case, all future invasions will naturally fall under one or another of the three categories that have been laid down for all time.

Similar is the ayurvedic approach to the analysis of matter. The ayurvedic definition and analysis of matter in terms of *panchabhutas*, that is, related to the five sense-impressions resulting from the contact of matter with the sense organs (sound (ear), attribute of space; touch (skin), attribute of air; form (eye), attribute of fire; taste (tongue), attribute of water; smell (nose), attribute of particulate matter, i.e., earth). Western analysis, according to the chemical elements composing it, is objective. From a philosophical standpoint, the subjective analysis provides the advantage and satisfaction of having a complete theory valid for all time because sense functions do not change (the attribute of *sanaatana*).

Let us pose another question: how can we consider ayurveda to be a scientific system which has maintained the principles professed 2,000 years ago when we know the principles of science that were taught to us during our school days are considered to be incorrect today?

A well-known ayurveda scholar responds: 'This argument is like that of a fisherwoman quarrelling with her neighbour, a jeweller: "I have to throw away the fish caught just the day before. If they are not sold, they go bad. How unfair and dishonest my neighbour is who will not sell today, a diamond of his grandfather's time." In other words, it appears to be a characteristic feature of Indian thought to evolve 'categories' that are applicable for all time.'



dependent upon *yukthi*, which is the intellect that perceives the phenomena brought into existence by the coming together of a multiplicity of causes of which the phenomena are constituted. Again, having perceived the multiplicity of causes of phenomena, it uses *yukthi* to bring together appropriate actions and materials at the appropriate time and place. Thus, the traditional system, even in its theoretical formulation, seeks to find a means of healthy living in *this* world rather than dissecting it or bringing about major changes. It appears then, that while traditional sciences are indeed built upon a stupendous amount of detailed and minute observations, experiment (in the modern laboratory sense of the term) perhaps does not have a clear counterpart in this tradition.

Measurement and Quantification

Although measurement and quantification are an important part of indigenous systems of medicine, they differ in form from the modern systems. Most measurements in the traditional sciences are made using units 'normalised' to an individual. That is, while assessing a

person's height or the length of his or her limbs, the measurement is expressed in units of *anguli*, the dimension of a finger of the concerned individual, rather than an arbitrary standard external to the individual—the international metre. Such normalised units exist not only for measurement of length but also for volume and time. In *Yoga Cintamani*, for instance, a *maatras* of time has been defined as the time taken by a sleeping individual to complete one cycle of breath—one inhalation and one exhalation. Although measurement and quantification have their place in ISMs, their importance is somewhat limited as compared to modern systems. In India, it is not the geometry of Euclid but the *Asthadhyaayi* of Panini that is considered to be the supreme example of the construction of theory. Indian sciences are based on the understanding that numbers and symbols are not essential to achieve scientific rigour. Rather, the technical use of natural language—Sanskrit, for instance—has sufficed in highly abstract and technical topics like logic, mathematics and *vedanta*. Recent research has indicated that this method of using natural language to achieve rigour can have powerful applications in computer sciences as well.

Such differences should come as no surprise to those medical professionals aware of the plurality of cultures and their varied scientific expressions. Unfortunately, however, the myth of there being one universal science—the modern Western science—dominates the thinking of a large section of the scientific community. In fact, this view has served to block a healthy dialogue in India between those trained in Western allopathic medicine and those trained in the indigenous sciences. Given the above foundational differences then, is a synthesis possible or even desirable? Such a synthesis is undoubtedly a challenging and worthy goal. It would provide a unique opportunity for indigenous research based on a comparative framework, through which we would achieve a uniquely Indian system of medicine, building upon traditional knowledge and combining it with the best in modern science. Perhaps we would then be able to provide better health care for our people, as also make original contributions to the field of medicine. But first, a creative dialogue must be initiated for the medical professionals to overcome their lack of knowledge of the foundational issues related to the epistemology and philosophy of science. Only then will they be able to resolve the differences in the structures of the two systems.

Cultural Roots of ISMs

The traditional health system in India, for that matter in Southeast Asia as well, functions through two social streams: the *lok swasthya paramparas* and the *shastriya stream*.

The first refers to the local folk stream which is located in the several villages of India. It is the practise of indigenous health at the level of popular science which relies on immediately available local resources like flora, fauna and minerals.

The *lok swasthya paramparas* are widespread across the length and breadth of India and there is no tribal or rural community without a local health tradition (see Dr Chatterjee's paper in this volume). The harbingers of these traditions are millions of housewives with their phenomenal knowledge of food and nutrition and home remedies, thousands of traditional birth attendants, bone setters, practitioners of acupressure (*varmam* or *marma* in Sanskrit), *nethra-chikithsas*, *dantha-vaidyas*, *pasu-vaidyas*, *visha-vaidyas*, and traditional village-level herbal medicine workers who treat a variety of common and chronic ailments. They constitute a veritable army of village-level health workers entirely supported by village communities functioning independently of state support or that of any other organisation.

The *lok swasthya paramparas* thus represent an autonomous 'people's health culture', which provides health services at the village level.

According to an All-India ethnobotanical survey conducted by the Ministry of Environment (1985-90), there are 6,000 species of medicinal plants in India which are used by traditional practitioners in tribal areas and other village communities.



Aloe Vera

In the local tradition, the internal fleshy, mucilaginous jelly of the aloe plant, known locally as **Korphad Kumari**, etc. is used externally on burns and wounds and orally for gynaecological disorders.



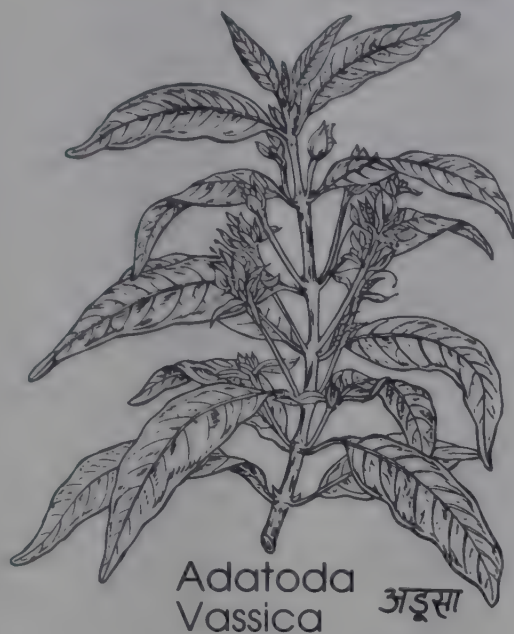
Alstonia Scholaris

In Karnataka, a decoction of the bark of the *alstonia scholaris* (**Sapta Parni**), a flowering branch, is used in virtually every household at the onset of the monsoon to prevent malarial fevers.



Turtle

The neck of the turtle is used in many parts of India for the treatment of a prolapsed rectum or uterus. The meat is eaten but the neck is hung up to dry, powdered and applied on the prolapsed organ which is then pushed inward again.



Adatoda Vassica or **Adulsa/Adusi Vasa** as it is locally known, is a common treatment for coughs, as also to stop bleeding in the case of piles or dysentery



Boerhavia Diffusa (**Punarnava**) is commonly used in the treatment of oedema as it has diuretic properties. It is also used to combat anaemia, particularly during pregnancy and is often eaten as a vegetable because of its beneficial effects.

Box 4

VARMAM KALAI—ACUPRESSURE

In Tamil Nadu, an expert in this art—an *aasaan*—was a necessary royal physician in all the kingdoms. The word *varmam* means 'a site where life exists'. It is an important point on the body which when pressed or massaged, stimulated or hit, could either treat a particular ailment or cause the total loss of function of a particular part of the body. For this reason, the art was taught only to those who had been able to combat anger, those who had total self-control, or those who were predisposed to a gentle temperament.

Varma Soothiram, *Varma Peerangl*, *Varma Thiravugole*, *Varma Ponoosi*, *Varma Kundooci*, *Varma Guru Nadl* are only a few of the several books available on the art. They describe the points of *varma*, the effects of injuries and their treatment, the qualifications necessary for a person to learn the art, and the ethics to be followed in its practise. The *Varma Soothiram* states that 'as the science of *varma* deals with the life of people, if it is taught to people of bad character it will end as an evil to the entire society—so *varma* has to be taught to those who are pious and of good character.'

Varma points have been classified into six groups based on how they can be influenced.

1. <i>Padu varmam</i> (by violent injury)	12
2. <i>Thodu varmam</i> (by touch)	96
3. <i>Thattu varmam</i> (by blow)	8
4. <i>Thadavu varmam</i> (by massage)	4
5. <i>Nakku varmam</i> (by licking)	1
6. <i>Nokku varmam</i> (by sight)	1

There are some *varmas* which when hit or injured should be treated within a specified period of time, after which the injury could prove fatal. Such points are called *kaalam*. For example, *nachathira kaalam*—which is a point at the external angle of the eyelid—when hit may prove to be fatal if not treated within twenty-seven *nazhigals* (one *nazhigai* is about two and a half minutes).

Thus, the art of *varma* is very promising for present-day practitioners. Though it is still widely practised in some areas in the Kanyakumari district, not many know of this method of treatment in the cities. To quote Siddha Vaidya Rajamony, 'the benefits of this wonderful science of *varma* have to reach the entire population. For that it has to be accepted and practised by practitioners of all systems of medicine'.



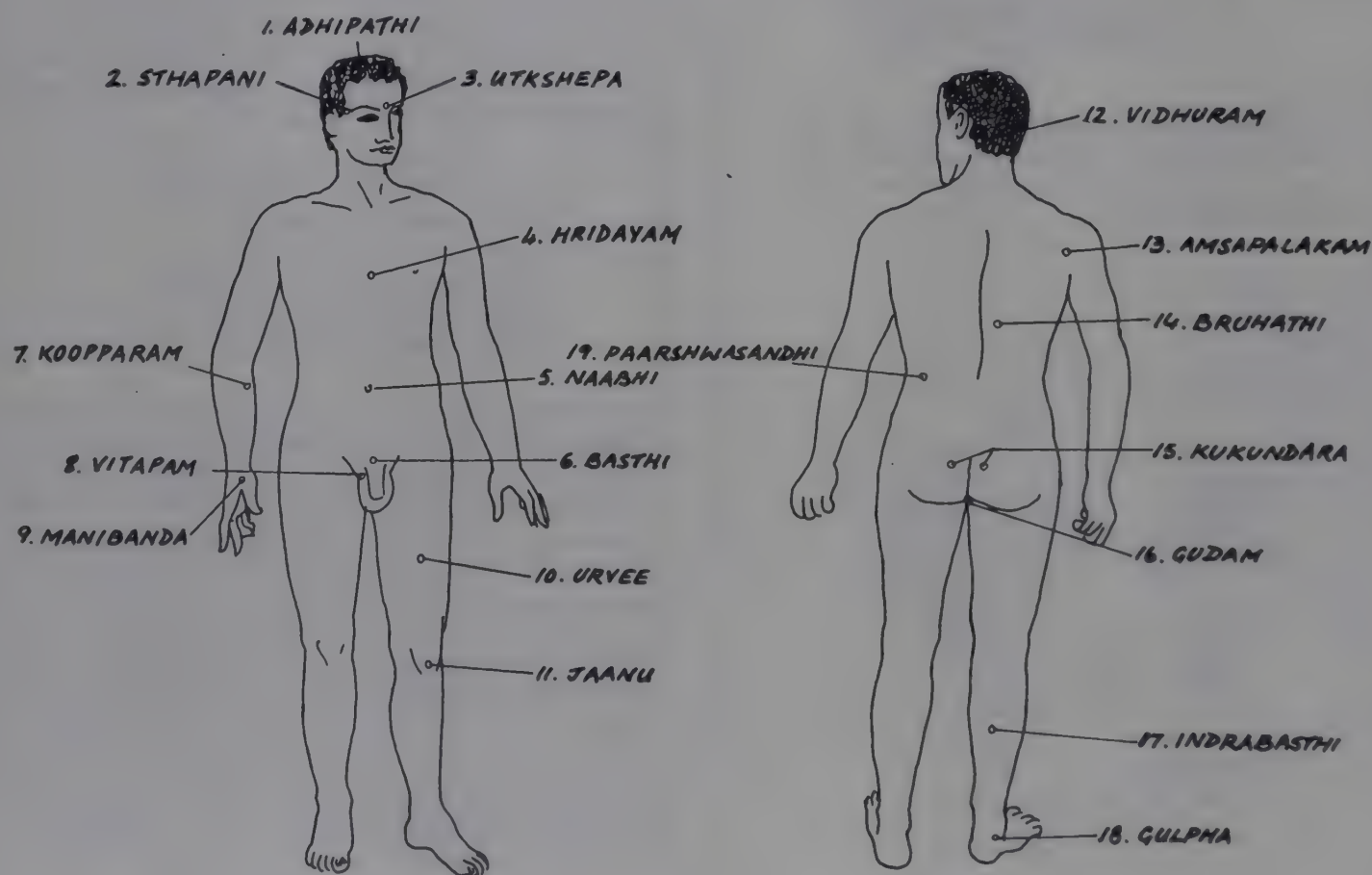
THE CLASSIFICATION OF MARMAS ACCORDING TO SUSHRUTA

The 107 *marmas* are classified in two ways: according to what the *marma* is made of and the effects of injury to the *marma*:

I.		
1.	Mamsa marma	- 11
2.	Slra marma	- 41
3.	Snaayu marma	- 27
4.	Asthi marma	- 8
5.	Sandhi marma	- 20
II.		
1.	Sadhyapraanahara	- 19
2.	Kaalantharapraanahara	- 33
3.	Vishalyaghani	- 3
4.	Vaikalyakara	- 44
5.	Rujaakar	- 8

MARMASTHANAS AS DESCRIBED BY SUSHRUTA

A few have been illustrated in the figure below. *Adhipathi*, *hridayam*, *naabhi* and *basthi* are examples of *sadhyapraanahara*. *Paarshwasandhi*, *bruhati* and *indrasthi* are examples of *kalatharapraanahara*. *Utkshepa* and *sthanani* are examples of *vishalyaghani*. *Jannu*, *amsapalakam*, *vitapam*, *koopparamurvee*, *vidhuram* and *kukundara* are examples of *vaikalyakara*. *Gulpha* and *manibanda* are examples of *rujaakar*.



The second stream of traditional health services is the scientific or *shastriya* stream. This consists of codified and organised knowledge with sophisticated theoretical foundations expressed in several regional manuscripts covering all branches of medicine and surgery. The systems of ayurveda, siddha, unani and Tibetan are examples of this stream.

There is evidence to suggest that the two streams have a symbiotic relationship. While the *shastriya* stream derives from the diverse *lok* experiences, the *lok param-paras* have derived their unifying principles from the

EIGHT MAIN BRANCHES OF AYURVEDA

1. Kaaya Chikithsa - General Medicine
2. Baala Chikithsa - Paediatrics
3. Graha Chikithsa - Psychiatry
4. Oordhwaanga Chikithsa - ENT and Ophthalmology
5. Shalya Chikithsa - Surgery
6. Damshtraa Chikithsa - Toxicology
7. Jaraa Chikithsa - Geriatrics
8. Vrushaa Chikithsa - Virilification/Rejuvenation

Box 7

SIDDHA SYSTEM OF MEDICINE

'It is a pity that north Indians either know nothing about siddha medicine, or persistently confuse it with tantrism and faith healing', siddha specialists commented at a recently conducted seminar.

The siddha system is one of the oldest systems of medicine in India. The term 'siddha' means achievement and the *siddhars* were saintly figures who achieved results in medicine through the practise of yoga. Siddha literature is in Tamil and the system is practised in the Tamil-speaking areas of India. This system of medicine developed within the Dravidian culture of the pre-Vedic period. It is a system largely therapeutic in nature and was practised by *siddhars*, a Tamil Shaivite sect which aimed at maintaining perfect health in order to achieve *siddhi* or heavenly bliss.

Walking on fire or water, flying through the air, transforming metals into gold, metamorphosing body tissues, travelling from one place to another in a fraction of a second: these were only some of the feats of which *siddhars* were capable, according to Dr V. Subramaniam of Tirunelveli.

Original siddha texts were inscribed on moist palm leaves with a sharp stylus by several authors over different periods. Some of these have been preserved in Thanjavur. The texts, in classical Tamil, are not easy to decipher because there is virtually no space between words, and difficult to interpret due to the involved symbolic and poetic form of the language.

Siddha texts tell us that God lives in the body and that the body is a temple which has to be saved from degeneration. The root belief of siddha is an intimate link between man and his environment. Man is seen as a microcosm constructed of all the elements found in nature. As the earth is susceptible to natural calamities and epidemics, human organs are influenced by food, poison, seasons and mental stress.

The Tamil Nadu government is making a concerted effort to propagate siddha as a science at all levels. There are two siddha colleges in the state, enrolling about 100 students every year.

The principles and doctrines of this system, both fundamental and applied, are similar to ayurveda, with specialisation in iatrochemistry. The difference between these two systems is more linguistic than doctrinal. According to this system, the human body is the replica of the universe, as also are foods and

drugs, irrespective of their origin. It believes that all objects in the universe, including the human body, are composed of five elements: earth, water, fire, air, space or ether. The food that we eat and the drugs we use are also made up of these same five elements.

The siddha system views the human body as a conglomeration of three *doshas*, *saptha dhatus* and three *malas*. The food is the basic building material of the body which gets processed into *doshas*, *dhatus* and *malas*. The equilibrium between the three is considered to be 'health' and its imbalance regarded as 'disease' or 'sickness'.

The diagnosis of disease involves identifying its causes. This is done through an examination of the pulse, urine and eyes, and a study of abnormal sounds, colour of the body and the tongue, and above all, the status of *agni* (the digestive system of the body).

The siddha system emphasises that treatment is oriented not merely towards disease, but has to take into account the patient, his environment, meteorological considerations, age, sex, race, habits, mental frame, habitat, diet, appetite, physical condition, physiological constitution, etc. Thus, treatment has to be individualised to reduce the chances of error.

Today, 11,532 registered private practitioners provide services in the villages and towns of Tamil Nadu and Pondicherry. There are 105 siddha hospitals with 885 beds, and 316 dispensaries.

Research findings at the Department of Biochemistry, University of Madras, suggest that *vatha rasa vangam* cures diabetes effectively. Recent studies have shown that this drug increases the release of insulin, a key hormone that regulates blood sugar levels. *Vatha rasa vangam* acts by stimulating the beta-cells in the pancreas to secrete insulin to the glucose signal and thus improves the glucose balance.

Though the siddha system can contribute significantly to the health care of India's population as a whole, it has a special role to play in rural India, where cost-effective and simple remedies are a necessity.

Do *siddhars* exist today? Dr L. Kannan regretfully admits they do not. 'They do exist, I am certain, but they manifest themselves only to spiritually sensitive people.'

Box 8

UNANI-TIBB

SCIENCE OF STATE OF HEALTH AND DISEASE

The unani system of medicine has a long and impressive record in India. It was introduced by the Arabs and Persians around the 11th century. Today, India is one of the leading countries insofar as its practice is concerned, and has the largest number of unani educational, research and health care institutions.

As the name indicates, this system was first developed in Greece. The foundation of the unani system was laid by Hippocrates, and it owes its present form to the Arabs who not only rendered it into Arabic, but also enriched the medicine of their day with many of their own contributions. In this process they made extensive use of the available knowledge and experience of such sciences as physics, chemistry, botany, anatomy, physiology, pathology, therapeutics and surgery.

In India, the system paid close attention to the ayurvedic and other local medical systems and after subjecting them to its own tests, absorbed what was best in the native medical systems. Special attention was paid to medicinal herbs found in India and several books on the therapeutic qualities of these herbs were written by the Arab physicians. Gradually, the system set up several schools and laboratories for imparting instruction in this science of medicine and established hospitals and dispensaries in the large and important cities for the treatment of the sick.



Cupping treatment for Arthritis

shastras. A vast amount of knowledge which represents the wisdom of centuries of experience is encompassed in folk traditions. While there might be in any given field—medicine, for instance—learned professionals or *shastrakaras*, knowledge is not restricted to them alone but rests with other people in scattered and diffuse forms. In the Indian tradition then, all knowledge

prevails in different forms and is communicated in different ways.

What do the *shastras* themselves say about the relation between the indigenous systems of medicine and the *lok swasthya paramparas*?

Box 9

'FOLK' AND 'CLASSICAL'

Songs and literary works are classified into five groups based on how they are formulated and how easy they are to comprehend: *narikelapaakam*, *ikshupaakam*, *kadaleepaakam*, *drakshapaakam* and *ksheerapaakam*. The form most difficult to comprehend is the *narikelapaakam*. It is like a coconut; to be eaten, the shell must be broken, the fruit grated and then mixed with food. Next is *ikshupaakam*, the sugarcane form, which has to be crushed to extract the juice. This is followed by the *kadaleepaakam*, the banana form, which has to be merely peeled to be eaten. Easier still is the *drakshapaakam*, the grape form, which can be eaten without any processing, and the easiest of all is the *ksheerapaakam* or the milk form, which is not only easily consumed, but is also a wholesome food for all age groups and people in all conditions. In a similar vein, in Sanskrit the literary compositions are classified into three groups: *Prabhu Samhita*, *Suhrut Samhita* and *Kaantha Samhita*. *Prabhu Samhita* instructs like a *prabhu* or master who punishes when rules are transgressed (as in the Vedas); *Suhrut Samhita* instructs like a friend who advises on what to do and what not (like the Puranas); and *Kaantha Samhita* instructs like a *kaantha* or one's beloved who advises and cites examples, coaxes, pleads or persuades to achieve the same end, namely *upadesa* (as in *kaavyam*).

It is noteworthy that these different formulations or forms of communication are not understood as being part of a hierarchical system where one can replace or supersede another or is considered the generally superior form. Each one serves a specific need and may be the most appropriate for a particular context or for a given purpose.

Box 10

The *Charaka Samhita* states that: '*Oushadihi naama roopabhyaam jananthe hyajapaa vane, avtpaashchiva gopaashcha ye cha anye vanaasinaha*' (*Sutrasthaana*, Chapter I, *shloka* 120-21). 'The goatherds, shepherds, cowherds and other forest dwellers know the drugs by name and form'. Similarly, *Sushruta* states that: '*Gopaalaasthaapasaa vyaadha ye chaanye vana charinaha. Moola jaathihi cha tebhyo bhesaja vyakthi ishyathe*' (*Sutrasthaana*, Chapter 36, *shloka* 10). 'One can know about the drugs from the cowherds, *tapasvis*, hunters, those who live in the forest and those who live by eating roots and tubers.'

The contemporary status of indigenous systems of medicine is a culmination of the events over the last 200 years of colonial rule, pre-Independence policies of the Indian National Congress, and the post-Independence policies of the Government of India. A brief review of these stages is necessary to arrive at the contemporary state of the art of ISMs which, in brief, would reflect:

1. More than a century of colonial oppression
2. The distortions imposed on the psyche of the indigenous medical community due to the insistence of Indians and Europeans trained in allopathic medicine and allied chemical and biological sciences to interpret *ayurveda*, *unani* and *siddha* in allopathic and modern scientific terms without understanding the fuller implications of an exercise comparing two distinct scientific cultures

3. The biases in the health policies of the Government of India in terms of the share of various medical systems in the national health plans

The Colonial Phase

It is evident from a perusal of historical records that European response to indigenous science falls into two

phases. The earlier phase is evident in records which are relatively more objective, recording the state of indigenous science as it was. These accounts are part of the European quest for useful knowledge from the non-European world during the 17th and early 18th centuries, a period corresponding to the time when the Europeans' interest was in trade alone.

Box 11

BENGAL TRADITION

The *tol* system was used to educate physicians. *Kavirajas* with reputations for remarkable cures trained young aspirants to the science in their homes, without demanding a fee. The relation between the *kaviraja* and student was that of a *guru* and disciple. Students without a good knowledge of Sanskrit were first instructed in grammar, literary texts and logic. Having completed the primary course, they could proceed to the classical medical texts, but as it was rarely possible for a teacher to go through all the topics of the texts, students were made familiar with the basic knowledge of their *guru* and could later on read the other topics themselves. The following table shows the traditional school of ayurveda in 19th century Bengal.

Education in the *tol* was not purely theoretical. Students assisted the *kaviraja* when patients came to him, and they accompanied him when he visited patients at their homes. In this way they acquired clinical experience. Students also gained practical knowledge in procuring the raw materials for medicines and preparing them under the master's guidance.

The Leading Schools of Traditional Ayurveda in 19th Century Bengal

School	Special virtues of the school
East Bengal	
Savar	Preparation of herbal medicines
Matta	Techniques of examining patients, diagnosis and prescription
Gaila	Preparation of medicines of chemotherapy
Chandsi	Healing many kinds of ulcers, fistulas and piles
Chittagong	Treating insanity
Khandarpura	Treating insanity and constructing huts as temporary hospitals
West Bengal	
Murshidabad	Reading the pulse and diagnosis
Kumartooli	Medicine preparation, 'the pills of Nirambara do not fail'
Srikhanda	General physicians who sold medicines in the open market and who published ayurveda textbooks

Source: Brahmanand Gupta, 'Report on Indigenous Schools of Medicine in 19th-20th Century Bengal,' in Charles Lesley (ed.), *Selected Readings on Asian System of Medicine*. University of California Press.

Box 12

The British rulers did not interfere with the indigenous medical system during the first two decades of the 19th century. It was customary for them to employ Indians as subordinate health workers in hospitals. Those who gained skills in this way were attached to regiments and civil stations as 'native doctors'. As the demand for these workers increased, a school for native doctors was founded in 1822 and ayurvedic classes were started in 1827 along with instruction in some Western methods. Sanskrit College was opened in Calcutta under British patronage in 1824 and its medical curriculum was the first to include parallel instruction in ayurveda and Western medicine. This friendly coexistence between the systems did not last, however, for in 1835 the existing medical courses were abolished and a new medical college was established in Calcutta as part of a policy to make European medicine the only acknowledged system of study.

Source: Brahmanand Gupta, 'Report on Indigenous Schools of Medicine in 19th-20th Century Bengal,' in Charles Lesley (ed.), *Selected Readings on Asian System of Medicine*. University of California Press.

The second phase began towards the end of the 18th century, during which India was depicted as 'backward and barbaric'. The accounts from this period, corresponding to the firm establishment of colonial domination, highlight the deliberate attempt to suppress indigenous talent and achievements. Lord Macaulay's words expressed in the minutes of the Committee of Public Instruction entrusted with the preparation of the oriental education plan epitomises this latter phase of colonial response:

It will hardly be disputed, I suppose, that the department of literature in which the Eastern writers stand highest is poetry. And I certainly never met any orientalist who ventured to maintain that the Arabic and Sanskrit poetry could be compared to that of the great European nations. But when we pass from works of imagination to works in which facts are recorded and general principles investigated, the superiority of the Europeans becomes absolutely immeasurable. It is, I believe, no exaggeration to say that all the historical information which has been collected from all the books written in the Sanskrit language is less valuable than what may be found in the most paltry abridgment at preparatory schools in England.

Hortus Malabaricus (Flora of Malabar) by Hendrik Van Rheedee published in twelve volumes between 1678 and 1693 is perhaps the first comprehensive documentation by Europeans of the medicinal plants (740 plant species) used in the indigenous medical system. *Hortus Malabaricus* contains over 700 line-drawings of medicinal plants with names of each in Malayalam, Sanskrit, Urdu and Latin. Van Rheedee was so impressed both by the *lok swasthya paramparas* and the scientific or *shastriya* tradition that he organised an interdisciplinary documentation team which took over twelve years to complete its work. As a measure of his respect for the indigenous tradition he appointed two outstanding contemporary



ayurvedic physicians as his consultants to verify the identity of the medicinal plants and certify their uses.

I was often seized by the desire to explore and examine the leaves, flowers, bark and roots of those plants. And then I found that they frequently had a very sweet smell and a penetrating taste. And when I asked natives who accompanied me on my journeys whether they knew anything about these plants, they not only disclosed the names, but also knew very well their curative virtues and uses. I have often witnessed this on the way, when one of our companions suffered from some complaint, either an internal or an external one, although they [those Indians who accompanied Van Rheedee] were not endowed with either medical or botanical knowledge (paragraph 25 of the biography of Hendrik Van Rheedee by J. Heniger, published by A.A. Balkema).

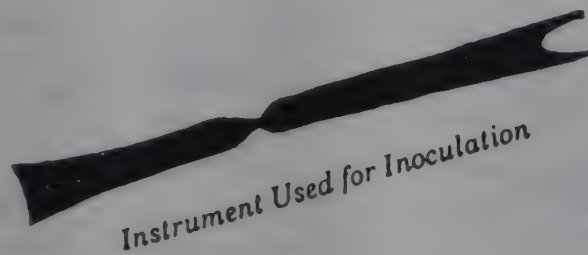
On the *shastriya* tradition he wrote:

I often attended a most delightful entertainment, for instance, when these Brahmins or gentile philosophers disagreed and disputed with each other by weight of arguments, which they took from maxims, rules, verses from antiquity, and books of their ancestors who were renowned for their learning. Indeed, they disputed and strongly defended their own opinions, but with incredible modesty, such as you might even miss in the most distinguished philosophers of the world, without any acerbity, mental disturbance or neglect to respect each other's opinion. They honour antiquity and the first inventors of their sciences with the most pious reverence, and by them judge their own views and also their own experiences. And as regards medicine and botany, the knowledge of these sciences is preserved in verses, the first lines of which begin with the proper name of the plant, whose species, properties, accidents, forms, parts, location, season, curative virtues, use and the like they then describe highly accurately. And they did this so skilfully that, if anyone mentioned the proper name of some plant, any Brahmin would at once answer you, stating whatever has been and can be said about it (para 43).

One area where indigenous medical practice was in evidence with outstanding results was in smallpox inoculations. In his book on Indian science and technology in the 18th century, Professor Dharampal collected several interesting accounts on indigenous medical practice. In a detailed report to the President and members of the College of Physicians in London, J.Z. Holwell (FRS) wrote:

Inoculation is performed by a particular tribe of Brahmins who are dedicated annually for this service from the different colleges over the various provinces. They travel in small groups (of three or four) from place to place so as to reach various places some weeks before the usual onset of disease. In Bengal, the inoculators normally arrive in February (or sometimes as late as March) before the onset of summer. The residents of each locality know the usual time when they arrive and observe a strict regimen for a month in advance. This consists of abstaining from fish, milk and *ghee*.

When they begin to inoculate they pass from house to house and inoculate only those who have observed the regimen. Usually they inoculate outside of the arm, midway between the wrist and elbow for the males, and between the elbow and the shoulder for the females. Before the inoculation, the inoculator takes a piece of cloth and rubs the part to be inoculated for eight or ten minutes. He then makes a small prick with a small instrument till a drop of blood appears. After that he opens a linen double cloth and takes from there a small piece of cotton



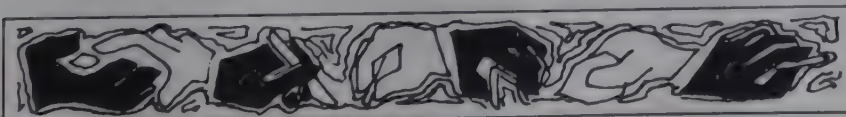
charged with variolous matter which he measures with a few drops of Ganges water and applies it to the wound with a bandage. This remains in place for about six hours. The prohibition of fish, milk and ghee extends for one month from the day of inoculation.

Dr Holwell goes on to say:

When the before-recited treatment is strictly followed it comes as a miracle to hear that one in a million fails of receiving the infection or of one that miscarries under it.

It would not be wrong to speculate then, that the high incidence of smallpox epidemics in all parts of India during the 19th and early 20th centuries could be attributed in part to the government's ban on indigenous inoculation in 1804.

Another example of successful indigenous medical practice is in the field of surgery. According to an account by Colonel Kyd, 'In surgery, in which [the Indians] are considered least advanced, they often succeed in removing ulcers and cutaneous irruptions of the worst kind which have baffled the skills of our surgeons by the process of inducing inflammation and by means directly opposite to ours and which they have probably long been in possession of' (IOR, MSS EVR F/95/1). Dr H. Scott (MD), in a communication to Sir Joseph Banks, President of the Royal Society, London, wrote, 'The effects of surgical operation are more obvious, more easily much to praise. They practise with great success the operation of depressing the chrystalline lens, when it becomes



Box 13

CAESAREAN SECTION IN INDIA

There is considerable evidence to show that Caesarean section has been practised in India from very ancient times. Caesarean section—that is, the incision of the abdominal wall and uterus to deliver a child near or at the natural time of birth—has been practised for more than one reason. The first of course is for medical purposes—to save the life of the unborn child. But it has also been practised for certain ritual reasons. The *Dharmashastras* prohibit the cremation of a child below 2 years of age. Hence, Caesarean section is performed on the dead woman to separate the child. Such a practice has been described in the *Baudhaayana Pitṛmedhasutra* and *Vaikhānasa Gṛhyasutra*.

The earliest descriptions of the Caesarean section are found in the *Nidanasthana* of *Sushruta Samhita*. There have also been more recent reports of this practice. It has been described in some detail by a traveller of the previous century as being performed by the Nagara community in Gujarat. T.A. Wise, in the 19th century, also reported such an instance related to him by a *pandit* of a live child born of this operation. The legends relating to the birth of the Buddha appear to indicate that he too was born of a Caesarean section. It has been noted that there was a 'search' for a surgical manuscript relating to Caesarean section on the living. The existence of such a manuscript was suspected in the light of what had been mentioned in *Sushruta Samhita* and the fact that the practice was still found to be in existence in some places even in 19th century.

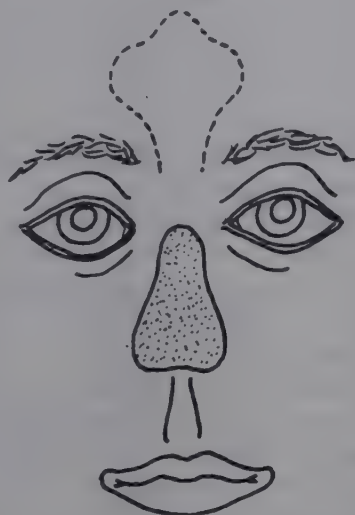
- Sources:**
1. Mrs Sinclair Stevenson, *Rites of the Twice Born*, p. 151.
 2. T. A. Wise, *Commentary on the Hindu System of Medicine*. London, 1860, p. 427.
 3. Alfred C.A. Foucher, *On the Iconography of Buddha's Nativity*, no. 46 of *Memoirs of the Archaeological Survey of India*.
 4. H. J. Poleman and P.G. Roche, 'Aspects of Cesarian Section in India'. *Journal of American Oriental Society*, 1939, pp. 17-21.

opaque [*sic*] and from time immemorial they have cut for the stone at the same place which they now do in Europe. These are curious facts and I believe unknown to us. . . ' (see Dharampal, *History of Science and Technology in 18th Century India*).

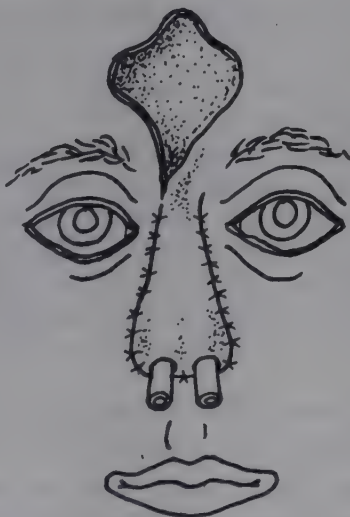
But perhaps it is in the area of plastic surgery that Indian tradition was greatly advanced from early times and this had an impact on the practise of the art all over the world. Writes S.C. Almast, 'twice did this art spread from India to the rest of the world':

In the centuries which followed the golden age of ayurveda, the knowledge of rhinoplastic procedures was probably transferred to Western civilisation by the free interchange of thought and experience between Hindu, Arab, Persian, Greek, Nestorian and Jewish scholars. Celsus the Roman who lived 25 BC to AD 50 was probably the earliest West European to describe plastic operations on the nose. The *Sushruta Samhita* was mentioned as *Kitabe Sushrud* by Ibn Abi 'Usaybia' (AD 1203-1269), the first historian of

Arabian medicine, in his book. It was also stated that during the reign of Al Mansur (died AD 775) an Indian medical work by Sushruta was rendered into Arabic by Manke, the Hindu court physician at the suggestion of Wazie Yahyaibn Khalid. The practical secret of rhinoplastic operations spread from India through Arabia and Persia to Egypt and from there it leaked to Italy. In the 15th century in Sicily, Branca used cheek flaps to reconstruct the proud noses of hot-blooded swordsmen. His son Antonio tried flaps



MEDIAN FOREHEAD FLAP RHINOPLASTY



YANTHRAS DESCRIBED BY SUSHRUTHA (Blunt Surgical Instruments)

- | | | |
|--------------------------------|----------------------------|-------------------------|
| 1. Anguli Yanthra | 2. Arsho Yanthra | 3. Ashmanyahama Yanthra |
| 4. Basthi Yanthra | 5. Bhiringamukha Yanthra | 6. Darvyakri Shalaaka |
| 7. Garbhashanku Yanthra | 8. Jalodhara Yanthra | 9. Kaakamukha Yanthra |
| 10. Kankamukha Yanthra | 11. Muchuti Yanthra | 12. Naadi Yanthra |
| 13. Rikshamukha Yanthra | 14. Sadamsha Yanthra | 15. Shamipathra Yanthra |
| 16. Shalaaka Yanthra | 17. Sharapunkha Mukha | 18. Simhamukha Yanthra |
| 19. Shwaanamukha Yanthra | 20. Shanku Yanthra | 21. Snuhi Yanthra |
| 22. Taala Yanthra | 23. Taarakshumukha Yanthra | 24. Vrika Mukha Yanthra |
| 25. Vrana Prakshaalana Yanthra | 26. Vyaaghramukha Yanthra | 27. Yugmashanku Yanthra |
| | 28. Yonyavekshan Yanthra | |

Box 14

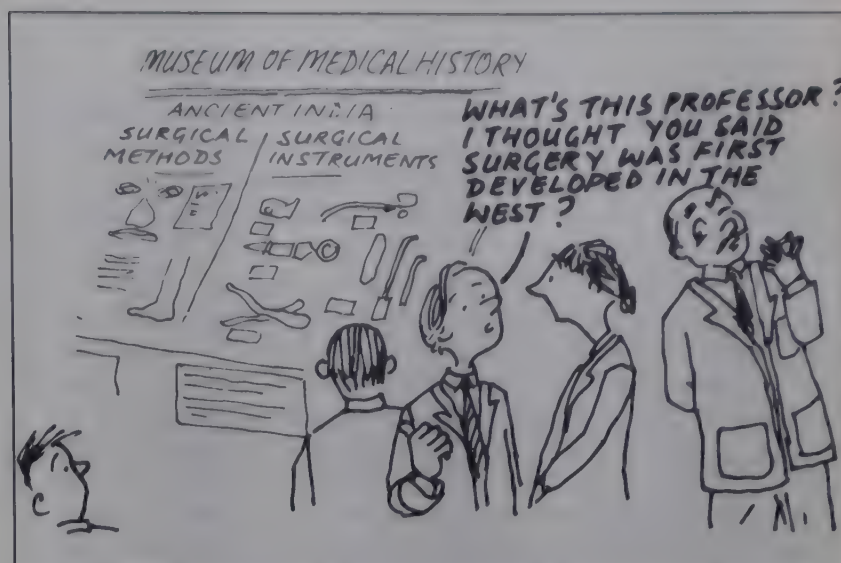
In Kumar near Poona, a Mahratta surgeon was seen by two medical officers of the East India Company, James Findlay and Thomas Cruso, performing a rhinoplasty by the median forehead flap. This case was reported as a 'singular operation' in the *Madras Gazette* of 1793. The patient was Cowasjee, a Mahratta bullock driver with the British army in the war of 1792. He went back and rejoined the Bombay army of the East India Company and after one year had his nose reconstructed in Kumar. A description of this case also appeared in the *Gentleman's Magazine* of London in a letter from India in 1794. The description of the 'singular operation' was responsible for the later spread of this technique to European countries and to the United States of America. The first successful case of forehead flap rhinoplasty performed in England was published in 1834, about twenty years after the Cowasjee case. Carpues' book, *An account of Two Successful Operations for Restoring a Lost Nose from Integument of the Forehead*, was published in 1816 and helped to create considerable interest in the subject. In Germany, Carl Ferdinand Von Graefe performed the first total reconstruction of the nose in 1816 and coined the term plastic surgery in his text on the subject published two years later. Jonathan Mason Warren from America undertook rhinoplasty by the Indian method in the year 1834. Captain Smith published his 'Notes on Surgical Cases—Rhinoplasty' in the *British Medical Journal* in 1897 and suggested improvements. Keegan wrote a review of rhinoplastic operations describing recent improvements in the Indian method in 1900.

SHASTHRAS DESCRIBED BY SUSHRUTHA (Sharp Surgical Instruments)



from the arm and by the late 16th century, Tagliacozzi had published his work on the Italian method of arm flap rhinoplasty (see Claude Alvares, *Homo Faber*. Mentor Publications).

Despite such accounts of competence, indigenous surgery, like smallpox vaccination, was legally prohibited during the latter half of British rule. By the mid-19th century, allopathy had become the sole recipient of state patronage, resulting in a decline in the indigenous systems of medicine. Surgery became dysfunctional, several traditional institutions of learning were forced to close down, and the morale of the traditional practitioners was at a low ebb. It is common for a section of historians and scientists to explain this decline as a



natural process by which a traditional body of knowledge loses its relevance in the face of the superior rationality of modern science. However, as this section has attempted to reiterate, this decline must be attributed to a political process that favoured the Western system of medicine and Western knowledge in general to the detriment of indigenous systems.

Pre-Independence Phase

The suppression of indigenous systems of medicine evoked a revivalist movement in India which found expression in and was linked to the larger nationalist struggle against colonialism. Once again, Bengal was the epicentre of this movement, and throughout the 19th century, the *kavirajas* of Bengal made valiant efforts to establish the contemporary relevance and competence of ayurveda. Kaviraja Gangadhar Ray was one of the pioneers of this movement.

Box 15

In the decades after the medical college was founded in Calcutta, it seemed that allopathy would supplant the traditional ayurvedic system. But the crisis was averted by a renowned *kaviraja* who elevated the prestige of ayurveda. Gangadhar Ray (1789-1885) exercised great influence throughout the 19th century.

Gangadhar settled on the eastern banks of the Ganga at Shaidabad, Behrampur, where he opened a *tal* and educated a number of brilliant students. He became a court physician to the Nawab of Murshidabad and a consulting physician to Maharani Svarnamayee of Kashimbazar. Gangadhar acquired legendary fame for his skill in the therapeutic use of poisons and decoctions, in diagnosis by reading the pulse, and in prognosis. Like many orthodox *kavirajas*, Gangadhar was well-versed in astronomy and astrology. He wrote Sanskrit commentaries on thirty-four books and himself composed forty-one books. His commentary on the classic text of Charaka, called *Jaipakalpataru*, was his special contribution to ayurvedic scholarship (see Brahmanand Gupta, in Charles Lesley (ed.), *Selected Readings on Asian Systems of Medicine*. University of California Press).

Box 16

He began to practise ayurveda in Calcutta when he was 19-years old. In the manner of his father, he directed special attention to the preparation of medicines and very soon he earned a good reputation. Observing the increasing importance of European drugs, he thought that ayurvedic medicines should also be prepared for sale in other countries and he seems to have been the first person to have exported ayurvedic medicines to Europe and America. In the pattern of European physicians, he introduced fixed consultation fees which equalled or surpassed the fee of British physicians. In the same way, he sold medicines according to fixed price lists and published advertisements for them. By these means he elevated ayurvedic medicines to the same rank as allopathic drugs and drew public attention to it. He published the first ayurvedic magazine in the Bengali language, *Ayurveda Sanjivani*, with the purpose of upholding the prestige of the Indian system. He established a *tol* in his home where he gave students free room and board, and his patients included well-known persons such as the religious teacher Ramakrishna Paramhansa. When he died in 1890, he was one of the richest men in Calcutta.

Gangaprasad Sen was a second great influence on 19th century Bengal, although in his work the subtle influence of Western medical tradition is evident.

Although this movement attempted to evoke an Indian 'will', taking place as it did when indigenous social, political and economic institutions and traditions were being rapidly replaced by Western models, it too was inevitably influenced by Western ideas and social forms. This influence is evident in the content of the ideological debate that emerged during this century on the question of how to revitalise ayurveda. The revivalist movement developed two ideological streams. The first held that indigenous medicine should be taught and practised in its classical or *shudh* form, while the second, which was directly influenced by Western ideas, held that allopathic elements needed to be integrated into indigenous theory, principles and practice in order to make it more complete. Liberal social circles saw the first position as retrograde and orthodox, although no systematic assessment was ever made of the competence of indigenous systems to deal with contemporary health care needs. These circles, as also indigenous practitioners trained in the new integrated institutions, were impressed by the experimental methods, technology and surgical skills associated with Western medical science, and above all, with its superior value in the job market. They naturally found the second position more acceptable.

The organisation of indigenous medicine itself underwent a change, once again taking its cue from the West. This was the birth of a new social culture, aptly described by the term 'professionalisation'. This professional culture resulted in several significant changes in the functioning of traditional systems.

- Formal colleges of Indian medicine were created with a time-bound syllabus, a crude examination

Box 17

Ayurvedic medical institutions began a downward trend following the establishment of the medical college in Calcutta. Conventional ayurvedic education was continued in the private homes of *kavirajas*, but the modest *tol* sustained by the personal financial sacrifices of the *kaviraja* could not be compared to the splendid well-equipped college that offered many training possibilities. Naturally, young boys who wanted to become physicians did not want to enter the *tol*, but were attracted to allopathic medicine. British policy encouraged this trend by granting scholarships and by distributing medical books, charts and models. Moreover, the students who studied allopathy had much better chances of achieving a good position in life than those trained in the old *tol*.

At first, orthodox *kavirajas* did not allow their sons to study allopathy, but after taking into account the financial advantages, a great number of them also sent their sons to the medical college. The students obtained certificates to practise medicine and surgery and were enrolled as First Class 'Native Doctors'. Second Class Native Doctors were those who had been trained in the short-lived college founded in 1822 and the 'Third Class' was composed of those whose training was limited to apprenticeship in hospitals. All young Indians were educated for subordinate positions, even in the college founded in 1835, and modelled on medical schools in England. But because of the financial amenities, allopathic institutions were well-attended.

system and impersonal classroom teaching replacing the traditional family-based *guru-shishya* relationship with its experiential culture of learning, unique pedagogy (*adhit*-memorise, *bodham*-analyse, *achar-nam*-practise, *pracharanam*-preach) and spiritual ethos

- Dispensaries and hospitals similar in design to allopathic OPDs were established in order to provide curative services
- Pharmacies were set up for the large-scale production and marketing of medicines



Box 18

- The Takmilut-Tib College was started in Lucknow in 1902
- The Venkataramana Ayurveda College and Dispensary in Madras in 1905
- The Astanga Ayurveda College and Hospital in Calcutta in 1916
- In 1921 the Vaidya Shastra Peetha was found by Kaviraja Shyamadas Vacaspati. The Ayurvedic College of Banaras Hindu University and the Rishikul Ayurvedic College of Haridwar were also started during this period
- The first TB sanatorium in India (which exists today) run on ayurvedic lines was established in the 1930s on the outskirts of Calcutta. By 1947 there were fifty-seven recognised formal institutions imparting training in indigenous systems of medicine
- In 1898 Kaviraja Chandra Kishore opened a pharmacy in Kulotola, West Bengal
- In 1884 N.N. Den began to manufacture ayurvedic drugs
- In 1901 the Sakti Aushadalya was started in Dacca
- In 1901 the Arya Vaidya Shala trust was started in Kerala for the manufacture of classical formulations

- Professional associations, a board for the registration of medical practitioners, and medical journals were also initiated

Thus, the traditional physician too gradually moved into a clinic to prescribe commercially manufactured drugs, confining traditional medicines to disease-oriented clinics and hospital-centred care. All aspects of this new 'professional' culture imbibed from Western influence were thus accepted uncritically and without debate.

New Sources of Political Support

This revivalist movement, as we have said, was taking place alongside the wider movement for Independence from colonial rule. In 1920, the Indian National Congress passed its first resolution in Nagpur, whereby indigenous medicine received political support for the first time in 200 years.

Following this, representative provincial governments set up special committees to define the necessary steps

Box 19

This conference is of the opinion that, having regard to the widely prevalent and generally accepted utility of the ayurvedic and unani systems of medicine in India, earnest and definite efforts should be made by the people of this country to further popularise schools, colleges and hospitals for instruction and treatment in accordance with indigenous systems (this resolution was reiterated by the Working Committee of the Indian National Congress in 1933).

Source: Chopra Committee Report, 1948.

to be taken for the revitalisation of indigenous systems of medicine. The Government of India, under the chairmanship of R.N. Chopra, also set up a central committee in 1946 for the purpose. The policy of the government is well-reflected in the various committee reports.

The basic recommendation of the Chopra Committee Report (1948) was an integration of the traditional and

Box 20

EXCERPTS FROM THE REPORT OF THE MADRAS COMMITTEE (ON THE STATE OF INDIGENOUS SYSTEMS OF MEDICINE IN MADRAS PRESIDENCY—1921)

That from the standpoint of science the Indian systems are strictly logical and scientific.

That from the standpoint of art, they are not self-sufficient at present, especially in the surgical line, though in the medical line, they are generally speaking quite self-sufficient, efficient and economical.

Cooperation between practitioners of the Western and Indian systems: In the best interests of science and suffering humanity it is best that the followers of each system should appreciate and learn the excellences of the other; to this end, it is highly desirable that the followers of either system should learn to ring out the existing feelings of mutual dislike and unhealthy isolation, and ring in the spirit of mutual helpfulness and fraternal cooperation.

One of the greatest needs of the hour is the willing and enthusiastic cooperation of Western-trained doctors sufficiently learned in Indian medicine as to be capable of visualising its immense potentialities and therefore zealous in helping Indian medicine to rapidly regain the ground it has now lost, especially in the field of surgery.

Two Standards of Proficiency—Higher and lower: Under our present conditions two types of practitioners are required to be trained with two standards of proficiency, a higher and lower, the principal aim in the training of the latter being the rapid multiplication of fairly efficient practitioners who may be expected to settle down or take up employment in rural areas while the chief aim in the training of the former should be to provide for higher grade general and consultant practice, specialisation, teaching and research. Suitable provisions should also be made for allowing the lower grade practitioners to qualify themselves for the higher standard of proficiency.

Although the Bengal Committee report began on a sceptical note, its conclusions recognised the need for a revival of ISMs:

The Committee thought it necessary to inquire also into two closely related questions. The first question is whether any particular advantage is to be derived by the public from the revival of such a system and the second is whether there are sufficient grounds to justify state aid and encouragement and the expenditure of public funds which might be involved. If the findings on these points are favourable to ayurveda, only then can we suggest the proper lines to restore and develop and improve the methods of teaching.

On the lok swasthya paramparas:

Household medicine in Bengal today is based largely if not entirely on ayurvedic medicine.

Regarding the position of ayurveda the Committee's conclusions were:

(i) A very large section of the population of Bengal resorts to ayurvedic medicine either from preference or from necessity, or from both

(ii) Medical relief, as at present available, falls far short of the needs of the population

(iii) The extension of Western medicine on a scale large enough to meet the full requirements of the people does not appear to be practicable on financial and economic grounds

The Calcutta University Committee on Ayurveda:

Though the ancient system (of medicine) reached the height of a systematising theorising school of thought, it lacked the freedom of individual action essential to the pursuit of real science, and its evolution was prematurely arrested by an unscientific veneration for petrified dogmas. In time, no doubt, they will be able to make available for the practitioners of Western medicine the traditional knowledge which is of real value and will reject, as Western medicine continually rejects, those theories which are mere survivals and cannot stand the test of experiments. The distinction between Western and Indian 'systems' of medicine will then disappear.

Western systems of medicine, which was translated into a blueprint for a national health plan: 'We have come to the conclusion that such a synthesis though not easy and (definitely) time-consuming is not only possible but practicable and essential.'

The Committee also compared the syllabi of the two systems:

Ayurveda Section	Western Section
1. <i>Padartha vignana</i> (<i>dharahanas</i> pertaining to ayurveda)	1. Basic sciences (physics, chemistry and biology)
2. <i>Sharira</i>	2. Anatomy
3. <i>Dosha-dhatu mala vignana</i>	3. Physiology
4. <i>Dravya-guna vignana, rasa shastra and aushada nirmana</i>	4. Materia-Medica

5. *Swastha vritta*

6. *Nidana (roga-vignana)*

7. *Kaya chikithsa*

8. *Shalya and shalakya*

9. *Prasuti-tantra, stri-roga kaumarabhritya*

10. *Agada-tantra and vyavahara-ayurveda*

5. Hygiene and public health

6. Pathology

7. Medicine

8. Surgery including diseases of eye, ear, nose and throat

9. Midwifery, gynaecology and paediatrics

10. Toxicology and medical jurisprudence

'It is to be noted that, although similar subjects have been included in both sections, the teaching of some of these is not being done in a correlated manner. We, however, hold that the study should as far as possible be made more "synthetic and comparative" rather than as a detached study of pure allopathy principles and practices. For this purpose the teaching of ayurvedic and Western subjects should preferably be by teachers holding both an allopathic degree as well as a diploma or degree in Indian medicine. In this way in course of time the lecture notes in each subject could form the basis for the preparation of what may be called "unified textbooks" suitable for use by every student of medicine in India, no matter what special branch—allopathy, ayurveda, siddha or unani.'

Of course there was criticism—from orthodox traditional practitioners and others who believed a synthesis to be impossible. Kaviraja Jaimini Bhushan Roy, a great *acharya* of the time, said: 'We can stand the test of any scientific criticism—provided our critics take the trouble to acquaint themselves with what they are criticising. Doubtless an elementary qualification is demanded of every critic in other branches of technical study, but somehow or other totally neglected by some professors, who think it is apparently the correct thing to judge

Box 21

NATIONAL HEALTH PLAN

No.	Unit	Population	Medical personnel	Other personnel	Equipment
1.*	Village or primary unit	3,000	Village <i> vaidya</i> or <i> hakim</i>	Nil	Subsidised dispensary and PH equipment
2.*	Secondary unit	10,000	Fully qualified physician Full-time govt. doctor	Midwives Inferior PH personnel	2 Provision unit for ten beds for 2 Inpatients
3.*	Panchayat unit	50,000	Male doctor/Lady doctor	1 Nurses Midwives 1 Skilled attendants	2 Motor 2 mobile unit fitted 4 with emergency requirements
4.**	Taluk or tehsil hospital	1,00,000	Medical officer (Western) Medical officer (Indian) Lady officer (any system)	Nurses 2 Midwives 2 Sillied attendants 4	2 thirty-bed hospital to treat 2 medical, surgical officers and obstetrical cases
5.**	District hospital	5,00,000 to 10,00,000	Highly qualified medical officers of both systems	Adequate to run the hospital according to bed strength	100 to 250 beds, X-ray apparatus, pathological laboratory
6.**	Presidency hospital in metropolitan cities	Varying according to provincial population figures	Highly qualified medical officers of both systems Specialists to treat all types of medical and surgical cases	Adequate auxillary staff according to bed strength	To give medical education, to give medical relief Provide for medical research work

* Mostly Indian medicine ** Synthesised medicine

ayurveda from ignorance born of prejudice or bigotry' (Chopra Committee Report, 1948).

Several others too were unwilling to accept the pre-supposition that modern Western science provides unique criteria that determine whether a body of knowledge—such as ayurveda—is logical and scientific.

The Committee responded:

Box 22

The opposition to this integration has come from only a small number of orthodox *vaidyas* and *hakims* and from some practitioners of Western medicine who consider that there is such a great diversity in the basic principles of these systems that integration is not possible. Pandit K.G. Natesa Shastri, a member of the Madras Committee (1921-1923) said that 'though truth is always the same without racial or geographical limits, yet differences in the ideal and modes of their thinking in the East and West are so great that the impact disintegrates them rather than strengthens and fuses the two systems.' Similar views were also expressed by others before our Committee. Some of the *vaidyas* and *hakims* who gave evidence appeared to be afraid that an attempt at synthesis would be merely an attempt to kill their systems and, that the older systems will lose their identity and will be swallowed up by Western medicine. Some of them allege that the indigenous systems are complete and perfect and are not only scientific but super-scientific. They are therefore convinced that modern scientists are not competent to sit in judgement on their systems. Some of the practitioners of Western medicine on the other hand appear to think that the indigenous systems are so archaic and unscientific that they cannot mix with modern medicine. Be that as it may, after careful consideration of the question, the Committee have come to the conclusion that there should be no such apprehension on the part of *vaidyas* and *hakims* if they have any real faith in the strength of the science and the art of the medicine they practise. Through investigation and research into their fundamental theories they should be able to show that their medicine is equally strong, scientific and based on solid foundation.

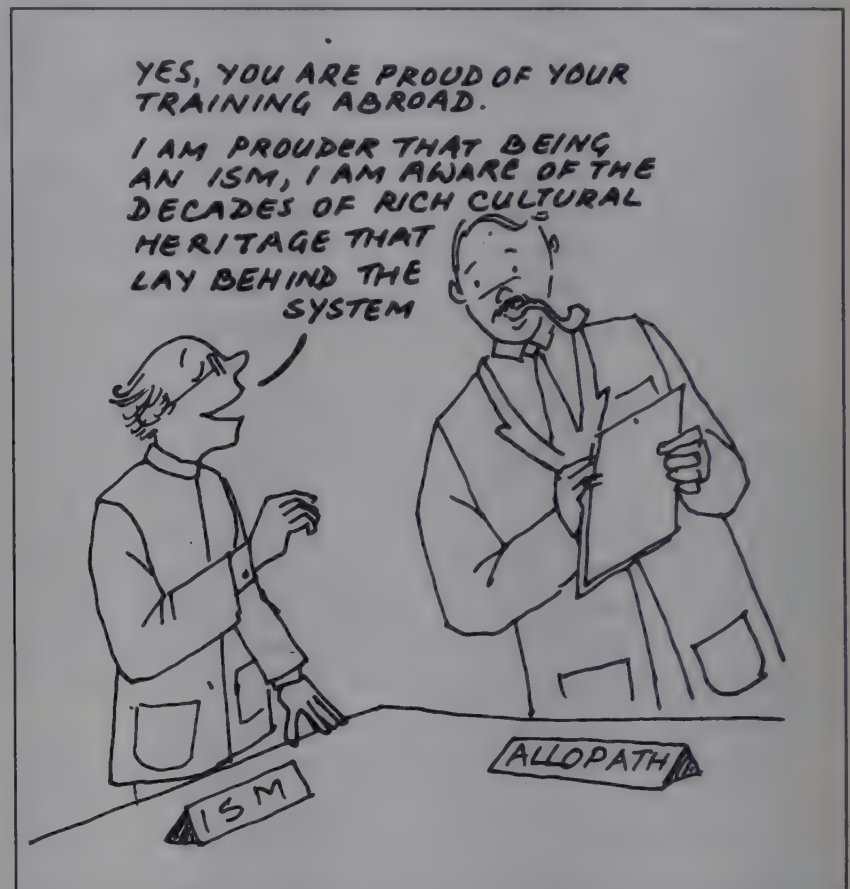
To the practitioners of Western medicine who are against integration and final synthesis we would suggest a study of the Indian medicine without prejudice before they call it unscientific and useless. Our experience is that those medical scientists who have made this study with an unbiased mind have realised the value of the writing of the ancient sages who expounded the original doctrines of ayurveda or of unani.

Support and Contradictions

The pre-Independence phase witnessed the political compulsions of establishing a national identity to replace foreign domination. In this, indigenous systems of medicine too underwent a revivalist movement and the largest number of initiatives ever to be undertaken on behalf of ISMs took place during this time. However, political support was based not so much on an understanding of indigenous science and its relevance, as on the fact that it was an indigenous activity which had a large following and hence served as an appropriate

symbol for nationalistic politics.

Despite political support, the ISM community remained deeply divided on ideological grounds—its relationship with Western medicine. This divide, however, should not be seen as a squabble between the orthodox and progressive forces—which is the common view—but as a foundational debate which had its roots in history. It revealed that despite 200 years of political and cultural suppression, a major section of the indigenous medical community still wanted to stand on its own. The conflict was not an accidental occurrence but a creation of the times, a direct reaction to Western cultural domination.



This debate extended to a dialogue between ISM professionals and Indians trained in allopathy as well. Unfortunately, however, this debate often degenerated into suspicion and mudslinging as the British had successfully blinded Indian allopaths to their own heritage. They carried with them all the prejudice and cynicism of the British:

- ISMs are purely empirical and are merely a bundle of herbal recipes
- The Indian humoral theory belongs to a pre-scientific age and has no relevance today. It is similar to the Greek theory which has long been rejected by the West. ISMs have no physiology in the indigenous scheme
- ISMs are a mixture of herbal medicine, superstition, religion and astrology

In fact, they had no idea of the comprehensive nature of the indigenous knowledge base or the specialisations

ranging from ophthalmology and dentistry to dietetics and geriatrics. The main reason for this prejudice was simple. They made no effort to learn about their own medical heritage from reliable teachers and original sources. Rather, they depended on the half-baked accounts of foreign Indologists, sociologists, anthropologists and colonial administrators for their sources of stray information. In the words of Paul Brass:

After a system of medical registration of allopathic medicine doctors was introduced in 1912, collaboration with indigenous practitioners, either in their new colleges or in daily practice, was considered as a violation of the imported British medical ethical codes and such doctors were threatened with deregistration. The wedge further deepened with the dispute over the registration of the Indian medical degrees by the General Medical Council in London. There was a section which called for admission of indigenous practitioners in the Indian Medical Association, but they withdrew as such policies might lead to a loss of their international recognition.

At the dawn of Independence, the indigenous systems of medicine were poised to play a major role in the national health plan. The Chopra Committee, as already noted, had drawn up a national plan in which ISMs played a major role. The Bhore Committee Report on the other hand, evoked strong protest at the 1946 Health Ministers' Conference for its neglect of the role of ISMs in the national plan. Which plan would be accepted in post-Independence India remained to be seen.

This revivalist movement in pre-Independence India, however, left untouched the revitalisation of the *lok swasthya paramparas*, or the people's health traditions and cultures across India, concentrating instead on the *shastriya* stream alone.

The Post-Independence Period

A Calendar of Contemporary Events (Reports of Various Official Committees on ISMs (1944-1991))

- Bhore Committee (1944-46):

The sovereign Government of India accepted the Bhore Committee's blueprint for national health services after Independence. This was based entirely on the allopathic system of medicine. The rather disgraceful recommendation of the Committee regarding the future of ISMs was to 'create a chair for the study of history of medicine in the All India Institute of Medical Sciences, New Delhi, wherein the

indigenous systems should be studied as part of medical history.' Fortunately, this was not followed up.

- Chopra Committee (1948):

The alternative blueprint suggested by this Committee (discussed in the preceding section) gave ISMs an equal role in rural and urban services. However, this was rejected by the Government of India.

- C.G. Pandit Committee (1950-51):

This Committee was appointed to follow up the major recommendations of the Chopra Committee. It rejected the idea of a common integrated syllabus for all medical colleges (including allopathy) and suggested instead that research be initiated on indigenous systems in order to establish their validity. In 1956, a Central Institute of Research was created for the purpose in Jamnagar, Gujarat.

- Dave Committee (1954):

This Committee prepared a model integrated syllabus for ISM teaching colleges alone, combining indigenous and modern sciences. It also recommended equal privileges for registered medical practitioners of ISMs. ISM colleges functioned on this integrated syllabus till 1962.

- Udupa Committee (1958):

The Udupa Committee recommended the gradual integration of modern medicine into ISMs, the establishment of three post-graduate institutes, a research council for ISMs, and an independent council for the regulation of educational standards in ISM.

- Mudaliar Committee (1961):

This Committee recommended the return of ISMs to their *shudh* or purely classical form, thus doing away with integrated courses.

Since 1962 to date, there have been no official national review committees to look into the performance of ISMs with regard to research, teaching and extension.



Developments in Research (1960-1991)

The Indian Council of Medical Research (ICMR) was the pioneer in the pharmacological and clinical evaluation of ISM drugs, and was the single body responsible for this work between 1960 and 1970. Its efforts have been largely directed at validating ISMs along modern parameters.

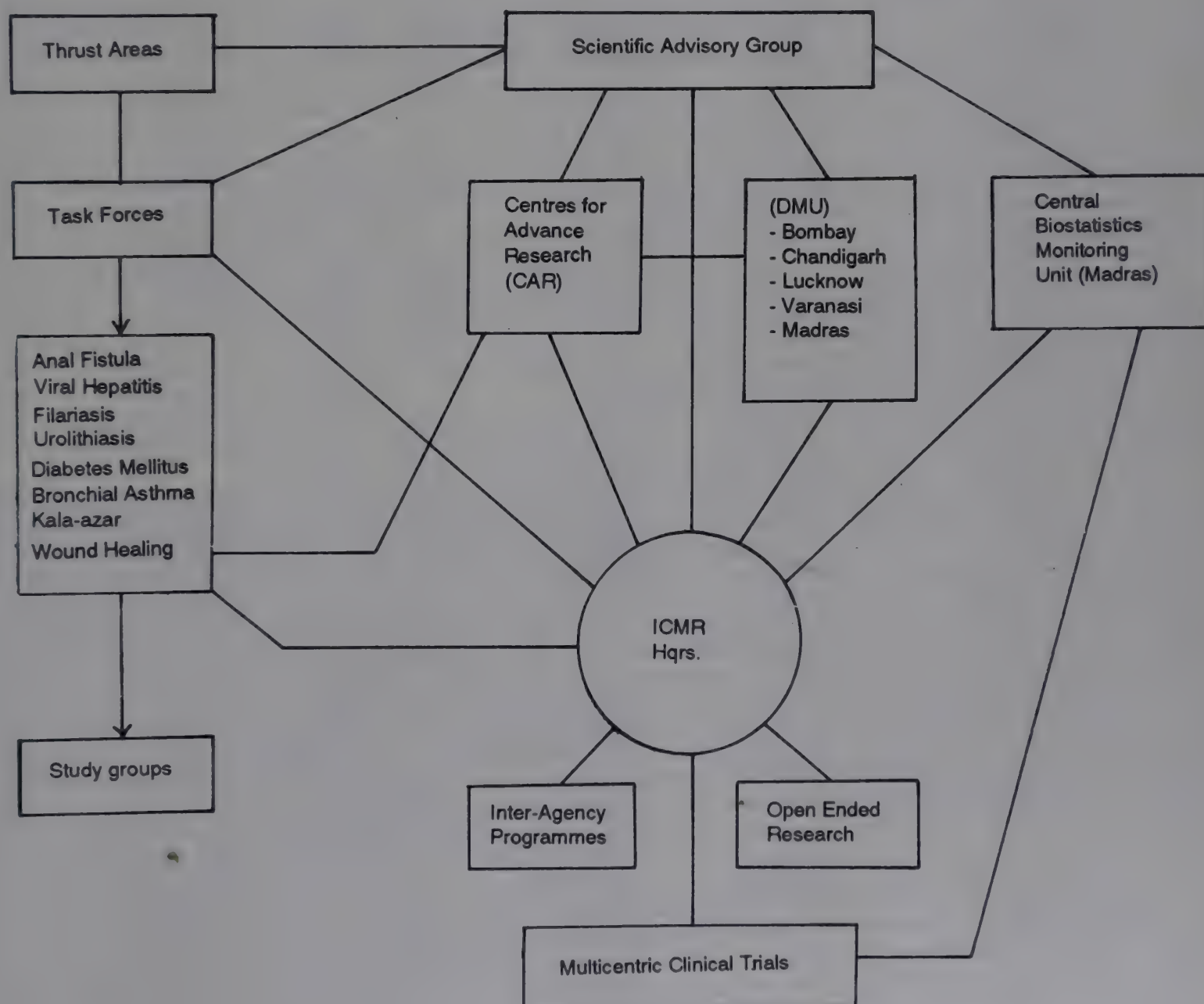
In 1969-70, the ICMR was divested of this central role in directing research programmes on ISMs and the responsibility was entrusted to a specially-created autonomous body—the Central Council for Research in Indian Medicine (ayurveda, unani, siddha) and Homoeopathy (CCRIMH). Since 1970 this body has been the central research agency for ISMs. However, the ICMR continues to undertake clinical research on traditional medicine, but no more as the nodal agency. Given below is a figure representing its activities during the Seventh Five-Year Plan.

Figure 1

INTEGRATED MULTI-DISCIPLINARY APPROACH

ICMR

TRADITIONAL MEDICINE RESEARCH - 7th Plan



DMU=Drugs Manufacturing Units

Box 23

HOMOEOPATHY: ITS RELEVANCE IN TODAY'S INDIA

Homoeopathy as a system of medicine, has slowly but definitely gained a foothold in India. Its origin lies in Germany where Dr Samuel Hahnemann thought about and experimented with the theory of similars. Homoeopathy is a system of medicine based on the principle of *similia similibus curentis*: whatever causes the derangement of the vital force alone can cure it best. In this lies the strength of this system, on a principle so eternally true that medicines based on this principle can never get outdated; nor do they have to be discarded because certain side-effects might later emerge which could be worse than the curative properties. The drugs are 'proved' on human beings only in minute doses and the effects studied. It would be wrong to claim that they have no adverse effects at all. Prescribed wrongly or taken for too long a period, they are capable of producing the very symptoms they were supposed to cure. Yet, compared to the other systems, the risk in homoeopathy is far less. The lower potencies are one reason and if the medication fails to cure it does not damage either.

The second outstanding feature of homoeopathy is that it treats each individual as a separate identity and the total personality—mental and physical—as one whole. The recent researches in the field of neuroimmunology have distinctly brought to light how the 'psyche' or state of one's mind has a direct influence on the immune system of the body. An individual's state of mind will, therefore, have a direct bearing on the health of the body. A cheerful mental state strengthens the immune system, thus making the body stronger in its effort to fight infections. Depression, on the other hand, lowers the body's resistance and makes the individual more susceptible to illness. This is exactly what Dr Hahnemann had said in the late 18th century: 'The material organism, without the vital force, is capable of no sensation, no function, no self-preservation; it derives all sensation and performs all the functions of life solely by means of the immaterial being (the vital principle) which animates the material organism in health and in disease.' Any derangement in this vital force (call it the 'spiritual self', the 'psyche' or the 'state of mind') is the source of all illness. An individual who is ill remains a total expression of this deranged vital force. The symptoms can be as varied as headache, pain in the legs, or an upset stomach. But he does not need three

different medicines for the three different expressions of his illness. Instead, he needs something to cure the vital self and the organism as a whole. A remedy, well-matched with his symptoms, will cure all three ailments. Another individual with the same problems but with different symptom manifestations may need quite another medicine. In homoeopathy, therefore, there is no specific treatment for headache or any other ailment. The essence of homoeopathy lies in matching the symptoms of the patient to the symptoms produced by the medicine. The mental symptoms, or how the individual feels, is taken to be the most important guiding force. Weather and time of day or night are also taken into consideration while prescribing treatment.

Homoeopathy also considers important the part played by food and way of life in curing a disease. Dr Hahnemann had said, 'In a rude state of nature but few remedial agents were required, as the simple mode of living admitted of but few diseases; with the civilisation of mankind in the state, on the contrary, the occasions of diseases and the necessity for medical aid increased in equal proportion.' Now, all doctors of all systems agree that a life of stress gives rise to more illnesses and good food habits play a role in keeping a person healthy.

It is evident that homoeopathy has throughout been a scientific system of medicine. What has been observed and compiled has been done with great care and precision. Unfortunately, several myths have for long surrounded this system, thus maligning it.

The butt of ridicule were the minute doses which chemical analysis cannot trace. People believe that something so diluted and minuscule can have little curative value. A further mystery was how the efficacy increased—by increasing the potency by further dilution! Recent research in the field of 'molecular memory' (how the memory of a molecule is retained in water long after that molecule can be scientifically discovered) may in future lay these doubts to rest.

We have thus far attempted to establish that homoeopathy is a scientific system of medicine and not a system of magic or voodoo where cure is effected mysteriously by popping a few sweet, identical pills taken to be the same medicine. The bottles do look alike because the pills are only the carriers for the actual liquid medicine. In spite of the myths, the ridicule, the lack of recognition and proper training, and practically no funds for any research, homoeopathy has made deep inroads in India. My personal experience dates back thirty-five years ago when my brother was cured of tonsillitis by a petrol

pump owner who practised homoeopathy as a hobby. The doctors had been unable to operate in this chronic case interspersed with frequent bouts of high fever. The option was accepted as a last resort and it worked. In those days getting the medication was a task in itself as the centre was Calcutta. In very few cities did people know anything about homoeopathy, let alone practice it, even as a hobby. There were no proper teaching facilities and anyone who developed an interest could read about it or at best learn it by working with someone who was practising it. Slowly, more people became interested but it remained more of a hobby for the benefit of family members, friends and neighbours.

Then came the homoeopathic colleges offering correspondence courses and finally, colleges offering four-year degree courses, which are still very few. The system of education is similar to that in other such colleges. Some colleges are good, as was the Bangalore college and hospital even twenty-five years ago, while others are merely a money-making venture. Homoeopathic education leaves a lot to be desired, but then the same is true of education in other fields and in other systems of medicine as well. Initially, few people opted for this system as it offered little scope in terms of economic viability or a career. It is only in the last decade that awareness of this system has grown and facilities reached the common man. If better facilities could be provided and allopathic doctors encouraged to learn this system (as in European countries), the potential of homoeopathy can be more fully realised. But, to be successful, dedication and a deep interest in the system are prerequisites.

In the Indian context homoeopathy can prove to be beneficial on two counts. Economically, it is best suited to our country. Allopathic and ayurvedic systems are both expensive. In the amount needed to cure one patient homoeopathy could cure at least twenty-five! In villages and cities where government hospitals/dispensaries bear the cost of health services, funds can be saved and with this several more could benefit. Another benefit is that as homoeopathic medicines are prescribed according to symptoms, they do not require elaborate diagnostic tests. It can thus be very useful in places where diagnostic infrastructure is not available. It would also eliminate delay and save the patient from incurring expenditure.

While life-saving facilities and diagnostic tests should not be disparaged or done away with, they should be restricted for use on the really needy—whether rich or poor. Today, a battery of tests are prescribed for the most minor complaints

which benefits the laboratory owners alone. If homoeopathy can be made more effective and popular this can be curtailed. The facilities can be organised to reach more and more people so that they need not visit the district centres or cities. Diarrhoea and gastroenteritis—the major enemies of children—can be effectively controlled and that too, very quickly.

Yet, there are drawbacks to this attractive scenario. The main drawback is that it is not only the village doctor/health worker who will need training, but the patients too. It is the educated people today who are conscious of the ill-effects of excessive medication and it is they who are turning to alternate systems. The uneducated and the villagers continue to have an implicit faith in tablets, capsules, injections and 'the drip'. For the slightest ailment, be it stomach trouble, cold, cough or fever, they rush to the nearest doctor for pills, uncaring of what they might contain, oblivious that they are often prescribed banned drugs. They forget the time-tested remedies used by the older generation and which were proved

effective. This problem is not limited to the poor and the uneducated. Several still ridicule the small pills, believing them unable to cure an illness. Homoeopathy for most people is still a last resort. As a result, the condition is often chronic and complicated due to excessive medication by the time the last resort is invoked. Naturally, the problem cannot disappear overnight. But people lose patience and that is how homoeopathy has come to be regarded as a slow process. Taken promptly at the beginning it works fast and the cure is complete and without side-effects.

The ideal solution would of course be to try and synthesise the various systems of medicine so as to draw the maximum benefit from each. It does sound like a utopian ideal but might be possible if effort is intensified and the merits of homoeopathy recognised. There are a few hospitals and medical centres that have a homoeopathic section. With some help in teaching and an assurance that even by studying homoeopathy a person can make a living, more people might take to

it. It can be of immense use in places where there is no medical aid. The medicines need no freezers and they are all the tools needed to cure most illnesses. If our country plans to be able to provide health to its millions it has to make an effort to utilise all the resources at its disposal. In this effort homoeopathy can contribute its share by reducing costs and simplifying the diagnostic procedures. As it becomes more popular the myths and fears will be dispelled and people will realise its effectiveness. Ignorance is all it requires to render a system dubious. The worst part is nearly over; the potential of homoeopathy is now being recognised and future progress should be easier. It can be of special help to those who cannot afford treatment, and it will be a boon to those who refuse to be drugged unnecessarily at the slightest pretext. The future does seem favourable for this system which synthesises a science and an art.

— by Nora Satin Choudhary

By the end of the Seventh Plan (1990), and after thirty years of research in ISMs, the ICMR has yet to come out with a comprehensive publication which can advise Indian medical professionals what they can profitably integrate from this field into mainstream Indian medical practice.



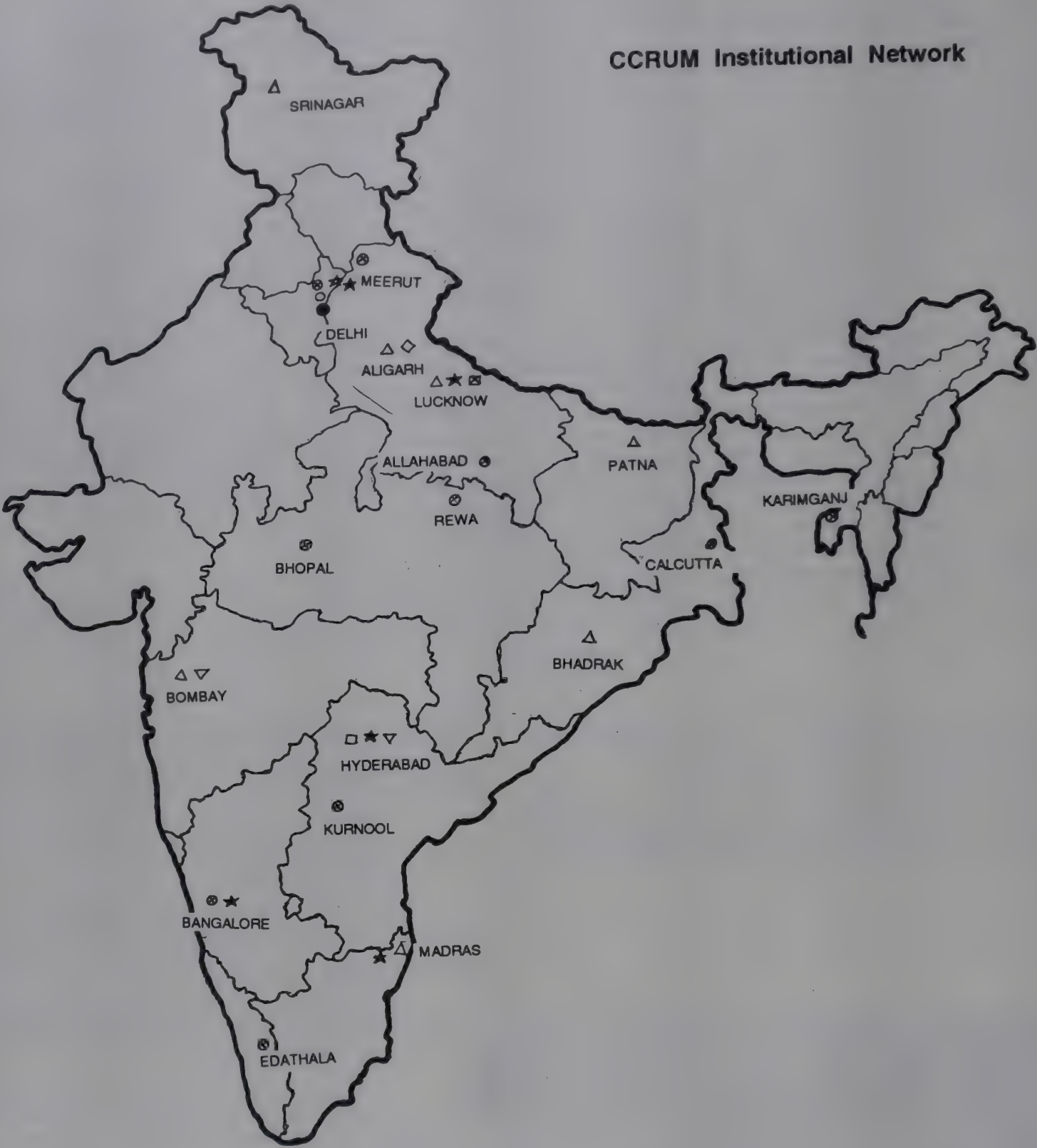
The CCRIMH was subsequently divided in 1978 into four specialised, independent councils for conducting research in different spheres of indigenous medicine:

1. Central Council for Research in Ayurveda and Siddha (CCRAS)
2. Central Council for Research in Unani Medicine (CCRUM)
3. Central Council for Research in Homoeopathy (CCRH)
4. Central Council for Research in Naturopathy and Yoga (CCRNy)

Today, the CCRAS has ninety centres—both small and medium—engaged in various research activities all over the country, while the CCRUM has twenty-nine centres engaged in research (see maps). The total annual budget in 1989-90 of these two councils together accounted for less than one-third of the annual research budget for allopathy available with the ICMR (the Central Research Council for Allopathy).

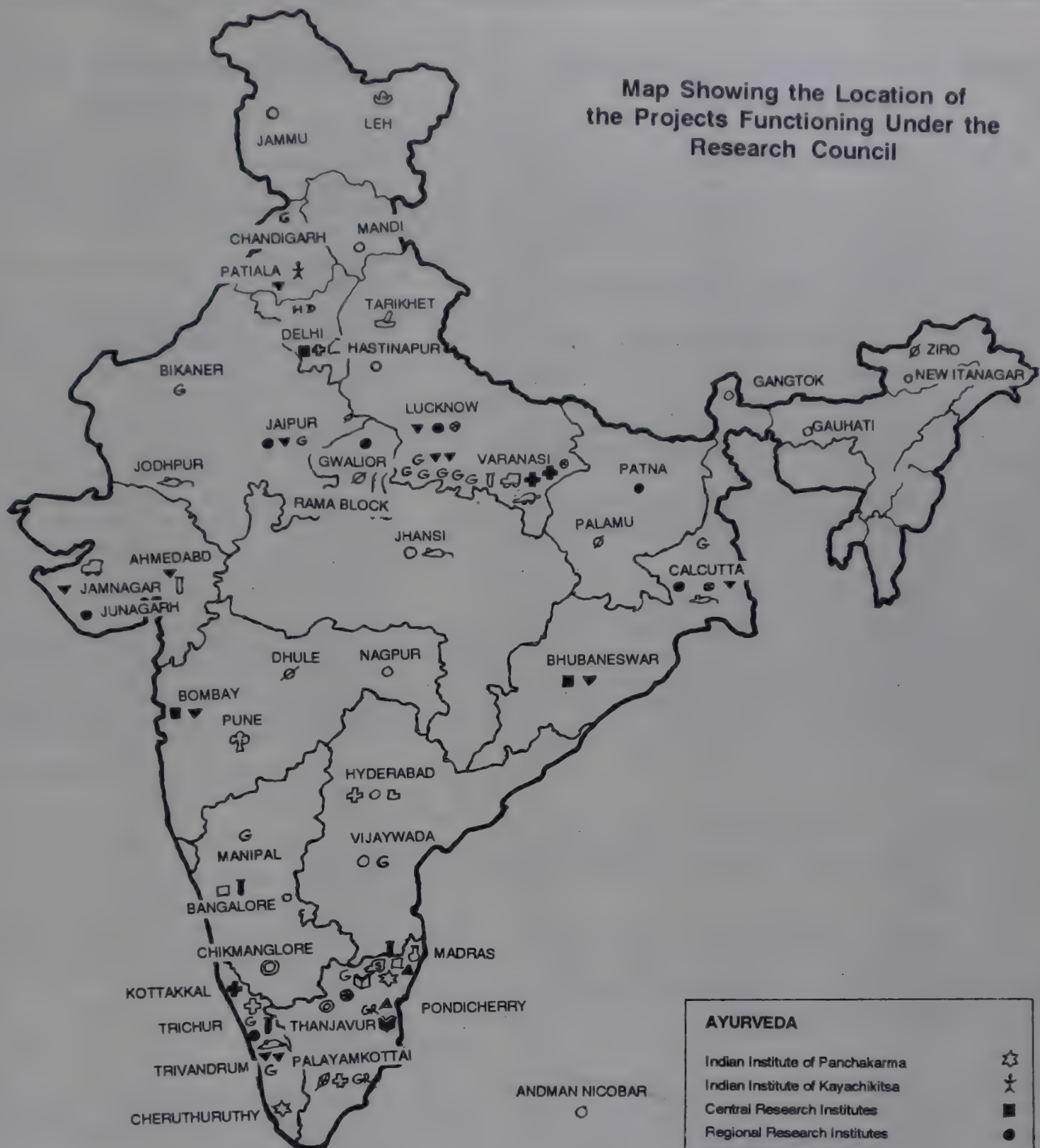
Although the ISM research councils lay claim to several achievements (see boxes), in reality, none of their findings have actually penetrated mainstream medical practice. The orthodox traditional physicians reject these research findings on the grounds that 'single drug, single disease' is not an ISM proposition at all. Therefore, any finding relating to any

CCRUM Institutional Network



- Headquarters
- Central Research Institute
- △ Regional Research Institute
- ⊗ Clinical Research Unit
- ★ Drug Standardisation Research Unit
- ★ Literary Research Institute
- ▽ Family Welfare Research Unit
- ⊠ Central Herb Garden & Museum
- Information Centre

Map Showing the Location of
the Projects Functioning Under the
Research Council



FAMILY WELFARE RESEARCH PROG.

Research Schemes on Screening of
Contraceptive Agents ▼

COMMON SCHEMES

Documentation and Publication Division D
Indian Institute of History of Medicine Hyd. H
Head Quarters Office H

SIDDHA

Central Research Institute ▲
Regional Research Institute ▲
Drug Standardisation Units I
Survey of Medicinal Plants Unit S
Mobile Clinical Research Unit M
Literary Research & Documentation Dept. L
Drug Research Scheme (Multi Disciplinary) D
Clinical Research Units C
Tribal Research Projects T
Grant-in-Aid Research Enquiries GR

AYURVEDA

Indian Institute of Panchakarma ☆
Indian Institute of Kayachikitsa ★
Central Research Institutes ■
Regional Research Institutes ●
Regional Research Centres ○
Capt. Srinivasa Murthy Research Inst. Madras ◊
Dr. A. Lakshmiapati Research Centre Madras □
Ayurvedic Research Unit Bangalore ⊠
Amalgamated Units Tanikhet ⊞
Jawaharlal Nehru Ayurvedic Medicinal
Plants Garden and Herbarium Pune ⊞
Drug Standardisation Units I
Mobile Clinical Research Units M
Clinical Research Units C
Pharmacognosy Research Units S
Chemical Research Units D
Pharmacological and Toxicity Units L
Tibetan Medicines T
Literary Research Unit L
Tribal Research Projects T
Grant-in-Aid Research Enquiries GR

COMMUNITY HEALTH CELL

326, V Main, I Block

Koramangala

Bangalore-560034

02229
COMM 300

Box 24

SOME ACHIEVEMENTS CLAIMED BY CCRAS (1970-90)

- The Council has taken sixteen patents for the processes/preparations arising out of the research studies. Out of these patents three drugs to treat malaria, epilepsy and cancer have been released to commercial entrepreneurs for marketing
- Brought out tested remedies for a number of clinical conditions
- Identified new areas of usefulness for existing drugs
- Large-scale studies are being carried out to combat malaria
- Conducted qualitative and quantitative surveys of different forest areas to unearth the hidden treasure of medico-ethnobotanical wealth
- Worked out preliminary standards for about 460 ayurvedic formulations of different kinds, besides detailed standardisation of twenty preparations
- Pharmacognostical studies on 135 drugs, chemical studies on 250 drugs and pharmacological studies on about 305 drugs, besides toxicological studies on various drugs used in ayurveda
- Published about thirty-five publications including various monographs of scientific interest and importance. The Council is also publishing a quarterly research journal and bulletin, one half-yearly bulletin and a monthly newsletter
- Large-scale trials are being conducted on a non-steroidal oral contraceptive agent from a herbal source
- Evolved analytical standards for about 675 formulations in the Ayurvedic Formulary of India Part-I and draft Formulary Part-II
- Conducted health and medicare research programmes in about 250 villages and about forty tribal pockets

Source: Ministry of Health and Family Welfare, Government of India (study by S.K. Alok).

disease which advocates the use of a single drug is necessarily incomplete. The allopaths also appear to have rejected these findings, believing that the research has been conducted without sufficient rigour to merit universal acceptance.

Developments in Education (1947-1991)

At the time of Independence, there were about fifty-seven teaching institutes of ISM. Today, the figure is 118.

From 1947 to 1961, the ISM colleges functioned on the basis of an integrated syllabus. This integrated syllabus instilled in both the allopaths and a section of ISM medical workers fear and suspicion, although the students in general welcomed it. The fears expressed were that such an integration would destroy the theoretical foundations of ISM, and reduce it to a

Box 25

RESEARCH ACTIVITIES OF CCRUM (1970-90)

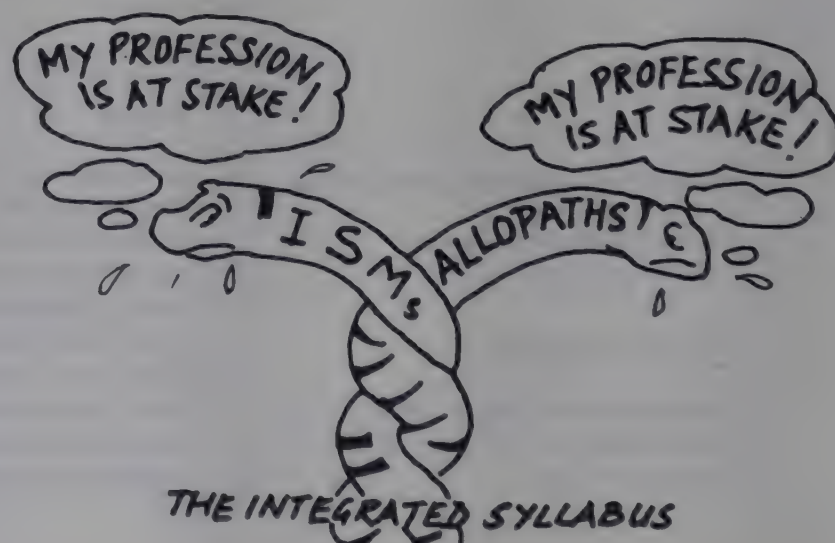
- The Council is undertaking clinical studies on common and chronic ailments. Through its different institutes and units it is presently carrying out studies on more than seventeen diseases
- It has successfully carried out advanced and extensive studies on vitiligo
- Significant research is in progress on sinusitis, infective hepatitis, leucorrhoea, diarrhoea, eczema and malaria
- Research to scientifically test cupping and the theories of humours is also underway
- Seven drug standardisation research units of the Council are engaged in evolving standards of single and compound unani drugs. This includes work in scientific documentation, pharmacognosy, phytochemistry, standardisation of compound formulations, etc.
- The Council is also involved with a systematic survey of medicinal plants in different parts of the country. About 35,000 plant specimens have been collected and are being identified. An ethnobotanical exploration is also in progress. A Central Herb Garden and Museum has been established to collect, preserve and display medicinal plants. About 150 herbs, shrubs and trees are being maintained by the garden. Besides, 280 drug specimens have been classified, labelled and displayed

Source: Ministry of Health and Family Welfare, Government of India (study by S.K. Alok).

hybridised cripple which would rely on allopathic diagnostic theory and technology, and treatment based on herbal medicines. The allopaths on their part feared that half-baked physicians would be permitted to practise allopathy and thus interfere with their professional monopoly.

Financing

During the Seventh Plan, ISMs—including homoeopathy, naturopathy and yoga—received 4.8 per cent of the national health budget.



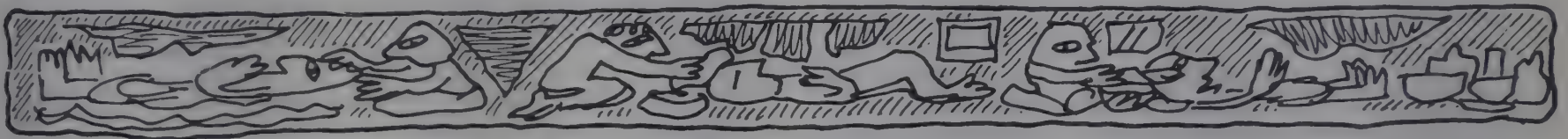
Box 26

AYURVEDIC EDUCATION

There was a time when the transmission of knowledge was through the *guru-shishya paramapara*, through oral communication from one person to the other. Ayurvedic education was not an exception. Nalanda, Takshila and Banaras were the seats of learning, and to every *guru* were attached several *shishyas*. They were all given individual attention, and teaching was very rigorous. But today, the traditional transfer of knowledge of ayurveda has been replaced by 102 undergraduate colleges affiliated to different universities in the country. The duration of the course is five years and an additional six months of compulsory internship, after which the candidate is conferred the degree of BAMS. There are twenty-three postgraduate institutions offering a course of three years (MD(Ay)) in various specialised branches. In order to bring uniformity and maintain standards of education in ayurveda, the Central Council of Indian Medicine (CCIM) was established in 1971 by an act of Parliament and is fully financed by the central government. This Council also regulates the practice of ayurveda and prescribes standards of professional conduct and the code of ethics for practitioners of Indian medicine. It also advises the central government in matters relating to recognition of ayurvedic qualifications and maintaining an updated central register of practitioners of Indian medicine.

But the reality of ayurvedic education today is very discouraging. The CCIM lays strict guidelines regarding infrastructure of colleges, number of staff, laboratory facilities, herbal gardens, hospital beds and number of in-patients for clinical bedside training. But more than half the ayurvedic colleges do not have even the basic infrastructure. There are no proper classrooms, no facilities for bedside clinical training. Even the faculty does not fulfil the basic qualifications and lacks the motivation to teach ayurvedic sciences. The majority of colleges produce graduates who are not equipped to diagnose problems along ayurvedic principles at all.

Further, most of the colleges are in the private sector, and, lacking state or community support, several are on the verge of closing down. Ayurvedic education thus needs to address the problems of (a) clinical and non-clinical infrastructure; (b) the quality and quantity of manpower; (c) financial support; and (d) political motivation.



Box 27

NATUROPATHY AND YOGA

Naturopathy

'Nature cures, not the physician,' wrote Hippocrates. Naturopathy is not so much a method of curing as a way of healthy living.

Naturopathy is a system of holistic practices which takes into account nature's relationship with an individual's lifestyle. The focus is on prevention of disease through emphasis on healthy living, and if at all disease occurs, it is to be treated by means drawn from nature. Thus, air, water, light, good food habits, exercise, cold packs, mud packs, baths, massages and other purificatory measures form the universe of naturopathy and are invoked to maintain health and cure disease. Any disease is regarded as a violation of nature's laws—not as the consequence of germs. Hence, drugs have no place in naturopathy, which holds that drugs do not cure disease; they merely suppress the symptoms. Toxins which are accumulated in the body (and are the main cause of disease) are thus removed by fasting. Only water or diluted fruit juice is permitted—self-control and living in harmony with nature are thus the fundamental principles. This century has witnessed the emergence of naturopathy as a scientific system of treatment. The thalidomide disaster and several other instances of the dangerous consequences of modern systems of 'health care' forced the layperson and scientists alike to look for alternatives. The Roman baths, Egyptian massages and Jewish diet rules found a place in modern scientific journals. Stay in harmony with nature to live in harmony with nature—that, in a nutshell, is what naturopathy advocates.

Yoga

Yoga—to unite with nature. This timeless science places equal emphasis on mental and physical health. This alone can enable a person to achieve better coordination of body and mind, without which an individual cannot be truly healthy, nor achieve *moksha* or salvation, the ultimate goal. Thus, yoga is a holistic science, one of the six systems of Indian philosophy, which deals with the physical, moral, social, mental and spiritual well-being of humans.

The system lays down certain procedures—or the eight 'limbs' of yoga (*ashtanga yoga*)—for an aspirant to follow. These are: *yama* (self-purification through discipline); *asana* (physical discipline through set postures); *pranayama* (control over bio-energy through rhythmic breathing); *prathyahara* (withdrawal and emancipation of the mind from the domination of the senses and exterior objects); *dharana* (concentration); *dhyana* (meditation); *samadhi* (state of super-consciousness where the aspirant realises he is part of the universal spirit).

Yoga has achieved greater significance today: the use of *asanas* has been known to have curative properties; *pranayama* has proved beneficial in bronchial ailments; meditation or *dhyana* can stabilise emotional aberrations, prevent the abnormal functioning of vital organs, and restrain and control the nervous system. Recent research by the All India Institute of Medical Sciences has shown that yoga has been successful in the cure of epilepsy and control of diabetes.

Similar to ayurveda in principle, yoga and naturopathy differ from it in one fundamental respect: the use of drugs is absent in both systems.

The National Health Policy recognises the role of naturopathy and yoga in the promotion of health and prevention of diseases. The Ministry of Health and Family Welfare renders financial assistance to the following institutions of naturopathy and yoga:

1. Central Council for Research in Yoga and Naturopathy, New Delhi
2. Central Research Institute for Yoga, New Delhi
3. Vishwayatan Yogashram, New Delhi
4. National Institute of Naturopathy, Pune

Central Council for Research in Yoga and Naturopathy

With a view to initiate, aid, develop and coordinate scientific research in different aspects, fundamental and applied, of yoga and naturopathy and to promote and assist institutions of research for the study of diseases, their prevention, causation and remedy, a separate Central Council for Research in Yoga and Naturopathy was established in March 1978. It is an autonomous body funded by the Ministry of Health and Family Welfare. The Council is one of the offshoots of the Central Council for Research in Indian Medicine and Homoeopathy.

The Council had been rendering financial assistance since 1981 to the yoga and naturopathy institutions for conducting research and training. Initially, thirteen projects of naturopathy and twelve projects of yoga were taken up. The term of various projects has since expired and the Council is considering requests for extension of some existing projects in yoga and naturopathy and new applications for financial assistance. In addition, the Council had been rendering financial assistance to two colleges of naturopathy. Following is the Seventh Plan allocation and grants released to the Council during the years 1983-1989:

Seventh Plan Allocation: Rs 70.00 Lakhs

Year	Grants released Plan	Rs in lakhs Non-plan
1983-84	16.83	0.51
1984-85	20.00	0.30
1985-86	12.00	3.00
1986-87	-	-
1987-88	8.47	3.50
1988-89*	25.00	3.50

* Budget estimates.

Central Research Institute for Yoga

The CRIY was established in 1976 as an autonomous body under the Ministry of Health and Family Welfare. The Institute has been conducting research on the following diseases:

1. Bronchial asthma
2. Arthritis
3. Gastro-intestinal disorders which include colitis, constipation, hyperacidity and allied problems
4. Diabetes mellitus

5. Sinusitis and rhinitis
6. Obesity

The Seventh Plan allocation and grants released to the Institute during the last five years are presented as below:

Seventh Plan Allocation: Rs 130.00 lakhs

Year	Grants released Plan	(Rs in lakhs) Non-plan
1983-84	29.50	-
1984-85	20.00	-
1985-86	5.00	14.00
1986-87	12.50	17.00
1987-88	2.82	15.01
1988-89*	20.00	16.50

* Budget estimates.

Vishwayatan Yogashram

This is a private registered society which receives grants-in-aid from the Ministry of Health and Family Welfare. Prior to May 1977, the grants were released to the Institute by the then Ministry of Education. The management of VY was taken over by the government in 1977 and relinquished in 1980. The grants released to VY during 1983-1988 are shown below:

Year	Grants released Plan	(Rs in lakhs) Non-plan
1983-84	11.73	-
1984-85	10.80	-
1985-86	-	8.00
1986-87	-	7.00
1987-88	-	7.00

Over this period, VY has trained several teachers of yoga:

Year	Numbers of teachers trained in yoga
1982-83	387
1983-84	297
1984-85	252
1985-86	190
1986-87	160

National Institute of Naturopathy

The NIN was registered as an autonomous body in 1984 under the Ministry of Health and Family Welfare. The Institute, however, is not yet functional. The following table shows the grants allocated to this Institute over the years 1983-1989.

Seventh Plan Allocation: Rs 100.00 lakhs

Year	Grants released Plan
1983-84	-
1984-85	-
1985-86	-
1986-87	-
1987-88	5.50
1988-89*	20.00

* Budget estimates.

Despite their achievements and potential, yoga and naturopathy have not received the attention they deserve. A lot remains to be done to strengthen these indigenous systems as they could play a crucial role in our health care programme. A step in the right direction was taken by the Central Council of Health and Family Welfare when it recommended that yoga could play a significant role in preventive health care and

should form a compulsory part of the curricula of all schools in the country. The matter is being actively considered in consultation with the Ministry of Education in the context of our education policy.

Source: *Indian Systems of Medicine and Homoeopathy*. Ministry of Health and Family Welfare (compiled by P.V. Unnikrishnan).

State allocations vary, with the government of Kerala allocating 13 per cent of its medical budget to ISMs while Bengal allocates less than 1 per cent. In general, ISMs fare better in Kerala, Rajasthan, Uttar Pradesh, Punjab, Gujarat and Maharashtra, while in West Bengal and Bihar the state is unresponsive.

Allocation for Indian Systems of Medicine and Homoeopathy in Five-Year Plans

	(Rs in crores)
First Plan	0.40
Second Plan	4.00
Third Plan	9.80
Fourth Plan	15.83
Fifth Plan	25.07
Sixth Plan	85.39
Seventh Plan	129.05

Source: *Statistics of Indian Systems of Medicine*. Ministry of Health and Family Welfare, Government of India.

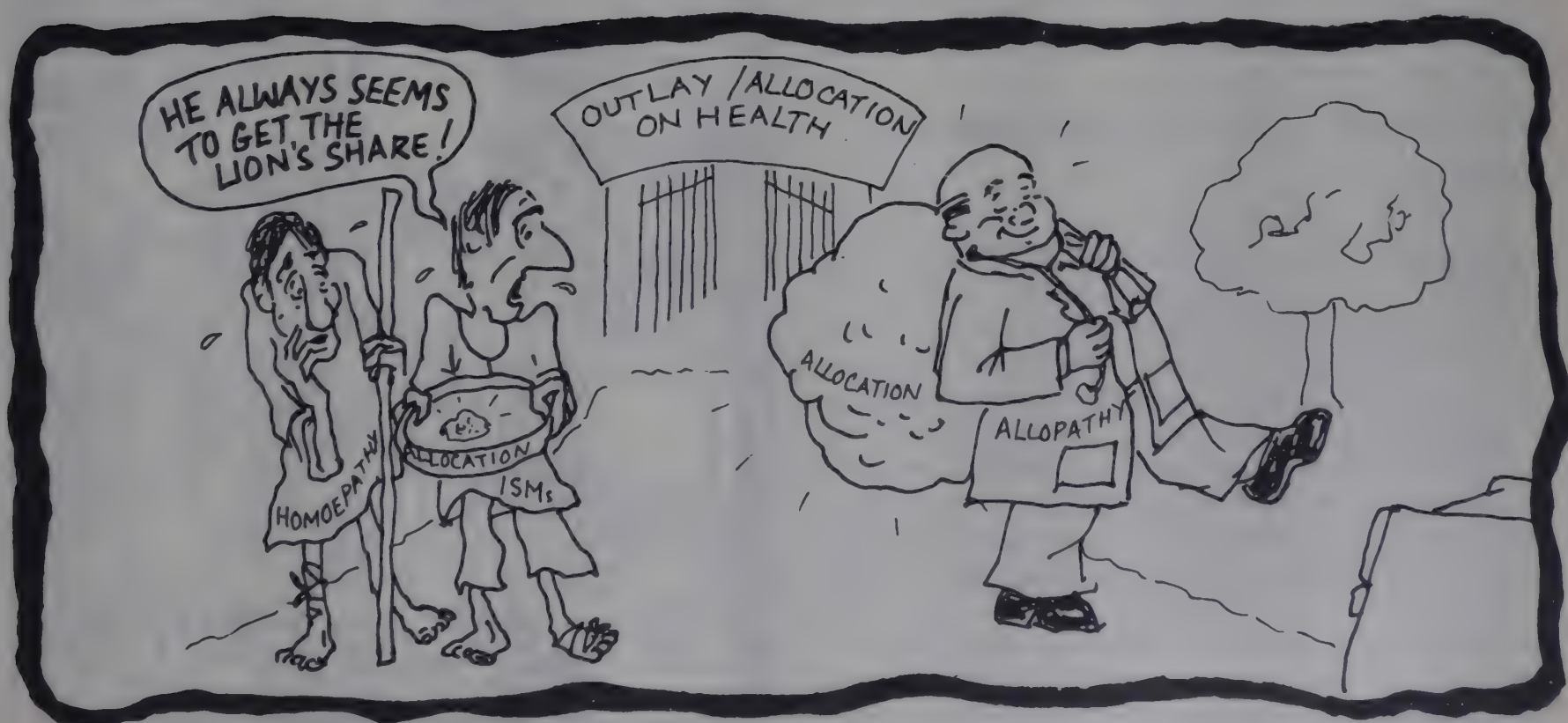
Outlay on Indian Systems of Medicine and Homoeopathy in the Plans

(Rs in crores)

Plan	Health outlay	Indian systems & homoeopathy	Proportion of outlay on ISM & H to total outlay on health (Per cent)
(1)	(2)	(3)	(4)
First Plan (1951-56)	65.3	0.40	0.61
Second Plan (1956-61)	140.8	4.00	2.84
Third Plan (1961-66)	225.9	9.80	4.34
Fourth Plan (1969-74)	335.5	15.83	4.72
Fifth Plan (1974-79)	760.8	27.72	3.64
Sixth Plan (1980-85)	1821.1	29.00	1.60
Seventh Plan (1985-90)	3392.9	43.25	1.27

Sources: Col. (2) and Sixth Plan outlays: GOI, DGHS, CBHI, 1984, Table 4.1;

Col. (3) (First to Fifth Plans): DGHS, CBHI, *Pocketbook of Health Statistics of India 1976: New Seventh Plan Outlays*. Government of India, Planning Commission, 1985, Annexure 11.1.



Box 28

TIBETAN MEDICINE

The Tibetan system of medicine has a central medical institute which was established in 1961 in Dharamshala in Himachal Pradesh, and several dispensaries across various states. All the expenditure is met by H.H., the Dalai Lama.

The Institute was established with the following departments:

1. **PHARMACY:** Tibetan medical ingredients are collected, cleaned and stored in this department. All medicines sent to different parts of the world are also prepared here
2. **TIBETAN MEDICAL COLLEGE:** Forty-nine medical students and four astrology students were undergoing training at the time of research
3. **HOSPITALS:** A ten-bed hospital provides board, lodging and treatment for the poor and needy patients
4. **MUSEUM:** This museum displays various raw drugs, ancient surgical instruments and texts, medical and astrological paintings and materials of interest
5. **RESEARCH:** The Institute plans to produce new medicines, undertake literary research translation, and treatment
6. **ASTROLOGY AND ASTRONOMY:** This department trains future astrologers, prepares calendars, almanacs, horoscopes and calculations for different occasions
7. **TIBETAN MEDICAL INSTITUTE: BRANCHES/DISPENSARIES IN INDIA**

	Dispensary
(i) Himachal Pradesh	4
(ii) Karnataka	3
(iii) Orissa	1
(iv) Uttar Pradesh	1
(v) West Bengal	2
(vi) Arunachal Pradesh	2
(vii) Delhi	1
(viii) Jammu & Kashmir	25
(ix) Sikkim	1
TOTAL	40



ISM Health Extension Services (1947-91)

ISM health delivery services in rural and urban areas are not—as a result of a policy of indifference—in any way linked to the national primary health care services. While they are effective and popular in some states like Kerala and Tamil Nadu, in other states their impact is negligible. Today, about 12,111 ayurvedic, 867 unani, and 316 siddha dispensaries fully funded by state governments are operational in various parts of the country. They function without any orientation to national health goals, and there has been no review in post-Independence India of how to make the ISM health services sector more effective. Twenty-two states even have directorates for ISM health services, but they function parallel to, and independent of, the state directorate of health services which manage primary health-care programmes.

The Structure of ISMs Today

What, in sum, is the structure of indigenous systems of medicine today? This is best illustrated in tabular form as follows:

THE STRUCTURE OF ISMs IN INDIA TODAY

- | | |
|---|--|
| <p>I. Grassroots level in village communities all over India.</p> | <ol style="list-style-type: none"> 1. 7 lakh midwives.* 2. 60,000 village bone setters. 3. 60,000 herbal medicare healers (excluding spiritual healers), including those who specialise in areas like <i>marma</i> (acupressure), <i>netra</i>, <i>danta-chikithsa</i>, paralytic conditions, mental diseases, <i>visha</i> (poisons), etc. 4. Millions of housewives with knowledge of home remedies, therapeutic diets, promotive herbs, and indigenous nutrition principles and practices. |
| <p>II. Non-government ISM centres (<i>shastriya</i>) of excellence.</p> | <ul style="list-style-type: none"> ● Small clinics of excellence dealing with bone setting, treatment of polio, treatment of eye diseases, arthritis, skin diseases, dental care, acupressure, <i>panch-karma</i>, mental diseases, <i>aushadikaran</i>, cardiac diseases, paediatrics, <i>visha</i>, and mother and child care exist in various parts of the country. Some of these clinics have facilities for a small number of in-patients. Whereas a few of these centres function on a commercial style (like private allopathy centres), most of the centres are accessible to the common man. ● These constitute the <i>lok swasthya paramparas</i> or people's health traditions. They are decentralised, autonomous and self-reliant with regional variations and are supported entirely by village communities. ● They use local resources. 2,600 species of medicinal plants are used by <i>lok swasthya paramparas</i> all over India, apart from minerals and animal products. ● In some of the traditional centres, outstanding work is being carried out which can contribute to world medicine. For example in a hospital for polio patients in Coimbatore, a respected modern orthopaedic surgeon reported that patients were cured of club foot deformity with the use of herbal oils for softening bony tissues. Similarly, wasted muscles have gained 'inches' in dimension (girth) by massaging with special oils. ● In Rajkot, Gujarat, as also in Pune in Maharashtra, there are traditional dentists who conduct painless extractions using a yogic technique for anaesthisng the patient. ● In Kerala, there is a <i>netra</i> clinic where the development of cataract is arrested in the early stages with the use of ayurvedic medicines. ● In Canannore, snake bites caused by the Russels Viper are treated with ayurvedic drugs. Modern doctors work along with traditional physicians at this centre. Modern doctors report that the diagnostics of snake bites in ayurvedic texts is very elaborate, and far more refined than in other medical systems. ● Effective treatment for arthritis can be found in Indian systems of medicine and there are several competent centres engaged in this work. The Arya Vaidya Chikitsalayam in Coimbatore and the Kottakal Hospital treat hundreds of patients from the world over every year. ● Several centres treat diseases of GIT, respiratory diseases and chronic skin conditions. |

- III. Official ISM institutions set up by the Government of India and state governments.
- 118 undergraduate teaching colleges, seven postgraduate centres.
 - Central Research Councils for ayurveda and siddha (ninety units) and unani (twenty-nine units).
 - Network of dispensaries mostly in rural areas, delinked from mainstream primary health care services (supported by state governments).
 - Thirteen state-run pharmacies of 'small-scale' production have been set up in many states. Their production is used exclusively for supply to state-run health services in ISM.
- IV. Private sector in ISM.
- Individual private practitioners form the bulk of the private sector. At the end of 1990, according to statistics brought out by the Ministry of Health and Family Welfare, there were 2,51,071 ayurvedic, 28,388 unani and 1,11,532 siddha registered practitioners in the country. There are very few private hospitals. The largest investment in the private sector in ISM is in pharmaceuticals. According to the statistics brought out by the planning and evaluation cell of the Ministry of Health and Family Welfare in 1986, there are about 5,981 licenced pharmacies (form 25-D) and 469 pharmacies (form 25-E). The maximum number of licenced pharmacies are in Uttar Pradesh which has 1,279 pharmacies, followed by Kerala which has 718 pharmacies. Maharashtra and Gujarat and West Bengal have over 450 pharmacies.
 - Despite the growing size of the pharmaceutical industry, it is not governed by any rigorous quality control or pharmacopical standards.
- V. Professional associations of ISM practitioners.
- The oldest association is the Ayurvedic Congress established in 1907. It supports the *shudh* form of ayurveda and is reported to have a large membership and several state branches.
 - A national association of medical professionals who believe in integrating ISMs with the allopathic system also exists. Most of the members are practitioners of indigenous medicine.
 - In Tamil Nadu, siddha practitioners have active associations which lobby effectively with the state government.
 - There are a few, although not very active, associations of unani practitioners.
- Qualitatively, the output of official institutions, teaching, research and services is poor. This is generally true for all government sector activities as compared to the private or voluntary sector.
 - Compared to official support for allopathic teaching, research and service institutions, it should be noted that ISMs receive less than 5 per cent of the national health budget.
 - While there is growing trend to emulate the commercial style of allopathic medical practice in the urban areas, the private sector in ISM as a whole has not yet acquired a completely commercial character.
 - In recent years, some multinational companies have also entered the market with ayurvedic products. This may be seen as purely commercial decisions because ISM drugs are exempt from excise.
 - Although bodies like the All India Ayurvedic Congress and the unani physicians under the leadership of Hakim Ajmal Khan played a leading role in the pre-Independence survival movement, in the post-Independence period their role has been rather limited. The professional associations have failed to work out a larger vision of what contributions ISM can make to national health goals.

- These are rough estimates: 7 lakh corresponds to roughly one midwife in each village and 60,000 covers approximately 10 per cent of India's villages. There is a need to carry out an all-India census of *lok swasthya paramparas* along the lines of the Special Census on Artisans carried out in 1961.

Obstacles to ISM Development— The Enemy Within

Historical events over the last 200 years reveal that indigenous science suffered a serious setback during colonial rule, primarily due to political discrimination.

The politics of nationalism in the pre- and post-Independence periods, however, have ensured a permanent place for indigenous systems of medicine in Indian

society, thus rescuing them from ignominy and restoring a certain measure of state patronage completely absent during colonial rule. Despite this, however, ISMs have not flourished in Independent India. This appears to be for two reasons: first, the Indian allopathic community has played a major role in discrediting ISMs, and second, the ISM community itself has remained inert, not rising to the contemporary challenges of health care, despite a favourable political climate.

Research Disorientation (‘Allopathising’ ISM)

The ISMs allowed themselves to be discredited, perhaps unconsciously, through the promotion of wrongly designed research programmes. Research designs for ISMs in post-Independence India have been based on the wrong assumption that the scientificity of these systems can be validated only through modern allopathic medical parameters. In the first place, the correlation of diseases recognised by allopathy with those described by ISMs is not yet well-established. Second, unlike allopathy, the indigenous systems do not advocate one drug for one disease. This is because their theory of cause and effect is based on a ‘systemic diagnosis’ wherein a particular disease may manifest itself differently in different groups of people. From the ISM point of view, then, it is ‘unscientific’ to look for a single drug therapy. Third, the theory of drug action in ISMs is explained in terms of physiological phenomena and in the context of *homeo stasis*. In allopathy, on the other hand, drug action is explained in terms of chemicals and biological phenomena. Despite such differences, clinical and drug research has attempted to assess ISMs along the lines of modern systems. No wonder then that research carried out by the ICMR, CCRAS and other ISM centres over the past twenty-five years has yielded indifferent results, only bringing discredit to the ISMs.

ISM Leadership—Lack of Self-confidence

The ISM community has still not recovered from the condemnation it has faced during the last 200 years. It could have promoted a scheme of research to establish its ability to manage various diseases using indigenous diagnostic, pharmacological and therapeutic logic. On proving its success in management, it could then have stood its ground, insisting that the reasons for the success of ISMs could only be understood if interested professionals were prepared to study the basic principles and diagnostics of the indigenous health sciences, instead of seeking to understand ISMs through fallacious correlations between the concepts of ISM and allopathy. However, even the favourable climate in post-Independence India could not help the ISM community recover its loss of nerve. It uncritically accepted the research designs imposed by allopaths in the hope that the teaching of classical texts could somehow be validated. This was a compromise that helped only to stunt the progress of indigenous systems. This lack of confidence has also led to the disorientation of the teaching programmes. The adoption of the integrated syllabus until 1962—which was a mere mixture rather than a creative synthesis—and of the formal institution-based

teaching methods followed in allopathy without infrastructure like hospitals, destroyed the traditional system of teaching. While there has been an expansion in teaching institutions, it can be attributed to the pressures in the market to create more professional courses rather than to a resurgence of ISMs.

Hopeful Signs

While some creative and outstanding work is being done in the field of indigenous medicine, it is almost entirely in the non-governmental sector. The best ISM physicians, as already noted, are found outside the formal institutions. Unfortunately, this good work is barely noticed by the national health policy-makers and health administrators.

Lok Swasthya Paramparas

The functional and largest health delivery service sector of ISMs is the people’s health culture. This decentralised community-managed system of health care at the grassroots delivers far more services than all the paramedics in the official allopathic and ISM institutions put together. This sector, too, is ignored in health policy. However, the *lok swasthya paramparas* are not without weaknesses. The task of revitalising these local traditions, to confirm what is sound, add to what is incomplete, or remove that which is distorted, is the greatest challenge for the primary health care movement in India. For, the *lok swasthya paramparas* represent the only sustainable, self-reliant form of health care for village India.

Conclusion

Indigenous health sciences, along with their widespread folk traditions, are our cultural heritage. The *hakims*, *siddhars*, *acharyas* and folk practitioners are only the ‘carriers’ of this national heritage. The revitalisation of traditional medicine is not the responsibility of the traditional practitioners alone but that of the nation. A genuinely ‘modern’ India will emerge only when the present generation of Indian scientists frees itself of the prejudices that have pitted ‘traditional’ and ‘modern’ in an antagonistic relationship. When Indian medical workers (of all ‘pathies’) work together with respect and with regard for whatever is of contemporary relevance in our heritage, it will result in a truly modern ‘Indian’ system of health care. The new Indian model of health care will probably be a creative synthesis between the indigenous and Western health cultures and one based on a new epistemology.

SPIRITUAL HEALTH

The royal road to self-realisation and *moksha* in the Indian mode of life is a path of essential isolation. While the different schools of thought have diverged in the degree of isolation which mystical and immediate apprehension of reality imposes, an experience of this state engenders a deep tranquillity and a solidarity with all things amidst the contradictions of everyday life. This experience of self-realisation restores an individual to a supreme state of health and wholeness and in so doing transforms the consciousness in a manner that makes it radiant and life-giving.

Because the path to liberation is a royal one for the select few, to realise the destiny of a kingship of the divine is an inexorable journey of anguish, valour and faith. The relationship between this basic spiritual principle of an inner search and the Western science of psychoanalysis can be demonstrated from an ancient Indian tale in which the dissolution of a strongly repressed primitive force transforms the individual's whole life and the appearance of the world.

Translating this tale from the *Samkhya Sutras*, Heinrich Zimmer recounts:

There was a king's son, once upon a time, who having been born under an unlucky star, was removed from the capital while still a babe, and reared by a primitive tribesman, a mountaineer, outside the pale of the Brahman civilisation. He therefore lived for many years under the false notion: 'I am a mountaineer'. In due time, however, the old king died. And since there was nobody eligible to assume the throne, a certain minister of state, ascertaining that the boy that had been cast away into the wilderness some years before was still alive, went out, searched the wilderness, traced the youth, and, having found him, instructed him: 'Thou art not a mountaineer; thou art the king's son'. Immediately, the youth abandoned the notion that he was an outcaste and took to himself his royal nature. He said to himself: 'I am a king'.

The youth's long journey to his original source and divinity is accomplished as if in one single instance of recognition of his true nature. Explains Zimmer in *Philosophies of India*:

The instant he acquires 'discriminating knowledge' (*viveka*), a distinction is revealed between his true nature and the accidental mask that he took on as a member of his wild and outcaste hunting tribe. . . . The king's son rises from his former life as from a dream, and in the broad daylight of his new realisation really feels that he is a king's son, possessing royal powers and prerogatives. He is united, at last, with the hidden fullness of his own true nature (*raivalya*), and is never again to be touched by the crude disfigurements that shrouded his supreme perfection.

While this essentially individual search for divine royalty must of necessity take the seeker away from family and societal moorings, the traditional pattern of child care in India, the joint family system and established hierarchies within the family, caste and community acknowledge the individual only in relation to the group. Writes Richard Lannoy in *The Speaking Tree*:

The caste-oriented individual finds little stimulus to develop consistent personal integrity and sincerity in accordance with his own conscience, for these belong to the

sphere of personality, the sense of self, the ego—a shadowy, vaguely defined area of himself which he is conditioned to regard as either unreal or displeasing to God. Before authority, father figures and God he must be as nothing, desireless, without any will of his own.... To cry for help does not cast one into a limbo of anxiety and lonely admission of personal inadequacy, but elicits a favourable response from the collective power of which the individual is an indissoluble part.

The healing traditions in India have consequently aimed to treat the physical malaise of the patient in the context of a larger social matrix within which undifferentiated behavioural aberrations must constantly harmonise themselves. Inevitably, healing is a complex ritual in which the patient's family and community also partake.

The doctrines of *karma* and *samskara* have welded the social system with the Hindu religion, eschewing thereby individual self-assertion and choice. With *karma* (deed and the result of deed) and *samskara* (rebirth in a mode appropriate to the *karmic* legacy), the death of the body becomes insignificant as the soul passes through a series of incarnations, each appropriate in its pilgrimage back to primal unity. This idea of role play in continuum mitigates any search for personal identity and effort to escape the grip of inexorable destiny. Similarly, the concept of *maya* or a cosmic play on earth of human beings implies that life need never be taken too seriously, engendering at the same time apathy and loss of control over life events. One of the oldest Indian systems of medicine, *ayurveda*, reflects this governance of the individual by social and cosmic forces. Its prescription for well-being, while encompassing physical, mental, normal and spiritual components of health, enjoins an essential conformity to a set of rules and regulations that an individual must follow through the course of daily life.

With the advent of modern medicine in India under the British, the polarities between the esoteric search for spiritual royalty and the exoteric control of the individual by society witnessed a new dimension. The sheer power of science to achieve many progressive breakthroughs was also seen in the field of health as miraculous cures were effected through spectacular advances in antibiotics, surgery, tissue transplantations, non-invasive imaging techniques, etc. though the scientific specificity of modern medicine viewed the human body essentially as a machine, albeit an exceedingly complex one. Its assertion rested on the standpoint of its ability to understand, modify and repair this machine.

The sense of control that science offered over the body, natural resources and even over destiny, threw open the scope for individual self-assertion for the educated in Indian society. The disadvantages naturally came with the advantages. Breakthroughs in the essentially mechanistic approach of modern medicine to human cure which had hitherto neglected the feelings and aspirations of the patient were research breakthroughs of the West. Thus, the spiritual link inherent in Indian thought between the spirit, mind and body in effecting cure came to be accepted in the biologically proven science of psychoneuroimmunology of the early 1980s. This science connotes the interdependence and interaction between the brain, endocrine and immune systems to both cause disease and effect healing within a unified and interconnected system of the body's functioning. Studies have shown that despite a steep rise in the incidence of killer diseases in the last two decades, if a 40 per cent reduction in ailments like strokes and coronary artery

diseases has been achieved, its cause lies not in any significant new medical technology but in changes people were prepared to undertake in personal lifestyles. The individual mind sought control over its body through correct diet, avoidance of excesses, prudent exercise practices, early detection and care of hypertension, and relaxation exercises for dealing with stress.

Psychology, too, aided in the process of identifying unconscious forces, both personal and collective. So while possession by an evil spirit is an old and socially sanctioned expression of inner discordance in India, the inchoate also came to be seen as strongly repressed forces which had to be faced, tamed and assimilated within the individual psyche. Linking disease with unhelpful attitudes and blocks, harnessing the power of imagination to effect healing, inferring meaning from dreams and other symbolic modes have all served to expand the scope of healing wherein the self assumes responsibility for its own condition.

Yet the marriage between Western individualism and Indian societal mores has been a far from perfect one. When one views indigenous systems of medicine such as ayurveda and siddha, the empirical roots of these scholarly formalised traditions lie in the rich diverse experiences of numerous localised *prakrit* traditions. Yet, the modernisation of the ayurveda curriculum at the college level through an integration with Western scientific modes led to its estrangement from its *prakrit* roots and a truncation of its social role. Given the absence of adequate official support and commitment and insufficient time to mature, this experiment at integration had negative fallouts: inadequate equipment, an inferior status and a heavy recourse to allopathic drugs for quick results. Further, a massive commercialisation of ayurvedic drugs in urban markets has all but eschewed its original bedrock as the science of life which aims to achieve an intricate psychosomatic integration based on the harmony of the physical, social and cosmic.

The incorporation of ancient practices such as yoga and meditation has been viewed as further means of counteract-

ing the mechanistic effects of modern medicine. While a respect for these practices underlies their inclusion in pathways to health, their benefits are sought essentially in physical terms just as mapping the stages of meditation in waves has aimed to tap it essentially as a technique. But the original royal road to divinity in which both yoga and meditation played important roles had very little to do with techniques for achieving physical well-being as their concern lay with the deathlessness of the spirit. Translated into the social system, it was reflected in a general unconcern with physical death—a premise no biomedical model has ever aspired to achieve. The yogic search for divine royalty can be glimpsed in Heinrich Zimmer's description of this vast and incomprehensible mystery:

Yoga can be defined as a discipline designed to yield an experience of the sovereign aloofness and isolation of the suprapersonal nucleus of our being, by stilling the spontaneous activities of matter, which, in the form of the bodily and psychic shell, normally overlie, the life monad. ... It creates and then transcends and dissolves various planes, or worlds, of experience and thus makes known the relativity of all states of reality; for when the inner world is seen to be but a function of the inner psychic organs, then the outer, visible and tangible universe can be understood, by analogy, to be but the consequence of an operation outward of the energies of the outer organs. By permitting energies to inner spheres, no less immediate and 'real', the external world is experienced as something that can be contacted at will, and therewith built up, or cut off by yogic effort, and therewith dissolved.

A scientific demystification has bequeathed us practices sans the original spirit that imbued the aspirant in his search for his lost royalty of the divine.

— by Neera Kashyap





In Search of an Alternative

Prologue

Traditional systems of health care have for long been buried under the conviction that all that is past is myth and primitivism. It is this myopic view that has led, I believe, to the present health crisis in India.

*Purāṇmityeva na sādhu sarvaṇ
na cāpi kāvyam (sarvaṇ) navamityavadyam.
Santah parīksyanyatarat bhajante
Mūḍhaḥ parapratyayaneya buddhiḥ.*

All things which are old should not necessarily be true, and all things new need not necessarily be without fault. To be wise, both should be acceptable only if they stand the test of time. The unwise, however, are easily swayed by others.

— Kalidasa

Introduction

Classical systems of indigenous medicine—ayurveda, unani, siddha, naturopathy, etc., are increasingly being recognised by scholars and administrators alike as scientific systems of traditional health care. However, our work among the tribals in remote regions in India has led us to believe that long before the origin of ayurveda, there existed (and continues to exist today) a

traditional health culture that unfortunately remained undocumented. As knowledge of this system was transmitted orally from generation to generation, it did not develop through an institutional framework, and hence, is regarded by the modern elite as antithetical to a rational health approach.

Our experiences have forced us to confront this apagogic view. Since the dawn of creation, *Homo sapiens* have been exposed to favourable and unfavourable forces to which they have continuously adapted. This process of adaptation led to the evolution of a culture, of which health was an integral part.

Traditional health culture is a product of history that has stood the test of time. Rooted in human experience and wisdom, it has survived long after civilisations rose and declined, it interacted with several counter-currents, yet maintained a unique identity. And this, because unlike modern systems of health care which are reductionist and based on Newtonian-Cartesian logic, traditional health care is holistic and based on non-exploitative relations between man and nature. We define this system of health care then, as a low-cost, less hazardous, naturally acceptable, and age-old health care system which has evolved out of human experience and wisdom. It is true that over time this culture has been invaded by a lack of order and a certain degree of superstition. However, it has certainly not eroded and its revival could complement the existing system of medicine—indeed it could be an appropriate alternative.

State of Traditional Health Culture

Origin

There are, unfortunately, no available published studies on traditional indigenous health culture. In fact, it could be said that the work of the Regional Research and Study Centre in Midnapore, West Bengal, is the first serious attempt to systematically document this health culture.

Some years ago, a group of social activists, particularly engaged in developmental activities among forest-dwellers, became increasingly aware of the latter's ability to successfully wage a battle against adverse social and natural conditions unaided by modern interventions. Their traditional system of medicine had not only survived over the centuries but continued to protect them from minor and more severe health hazards. The desire to unearth the forces of this winning battle stimulated the researchers to probe this unseen chapter in human civilisation. Evaluation became the point of entry.

Evaluation

Forest-dwellers in the three states of West Bengal, Bihar and Orissa were selected for the study. With limited resources and manpower, an exploratory evaluation was carried out through questionnaires and intensive dialogue with the people and traditional medical practitioners. Over one and a half years of intensive study covered the areas of aetiology, symptomatology, system of investigation, preventive and curative measures against diseases, and the rituals, beliefs and practices relating to health culture. Any study on the health culture of a people is incomplete without some information about the socio-cultural profile of the local people. The population under study included Santhals, Lodhas, Birhors, Kharias, Mundas, Bhumijis and Oraons, all of whom were involved in a wide range of occupations—including herding, agriculture and unskilled labour. The evaluation revealed two salient facts:

1. The age-old system of health care still exists in its pure form in remote tribal areas and is successfully practised by tribal doctors. In fact, it is the only available system to protect the people from health hazards
2. This system is dependent almost entirely on the environment. Where, in the

face of rapid deforestation and abuse of natural resources this equilibrium has been grossly disturbed, the forest-dwellers are the worst victims of innumerable health problems

Efficacy

Is the traditional system of cure based on rational premises? This is the question that has dominated the thinking of modern social and natural scientists alike. The answer, we believed, lay in an efficacy study of this traditional indigenous system. Some of the constraints that lay before us were:

1. In the absence of scientific methods of studying this complex and unique system, we required an appropriate methodology to understand all the forces at play within tribal health culture
2. The inhospitable terrain often made it difficult for the researchers to communicate with the forest-dwellers and carry out the study
3. It was not easy to establish a rapport with the local people who often saw us as 'outsiders'
4. Finally, should our approach rely entirely on the traditional system, or should this be juxtaposed with modern systems of health care?

To overcome these constraints, it was decided that the local tribal doctors would be entrusted not only with the diagnosis of ailments, but also with the treatment of patients. The role of the investigators was restricted to technical assistance in order to assess the results of the study in the light of modern medical science. The problem of the local people rejecting the investigators was overcome by relying on the socio-organisational network that had already been established during the evaluation study.

Prior to the investigation, the patients were examined by both the tribal and allopathic doctors. After arriving at independent diagnoses, the patients were treated by the tribal doctors with traditional medicines prepared from plants collected from the surrounding forests. However, patients suffering from chronic ailments were not included in this short-term field study.

After the course of treatment, the results were tabulated (see Tables 1 to 5). The efficacy study revealed that tribal doctors were highly successful in dealing with common ailments through their traditional system. However, what also came to light was the deplorable state of our environment and its hazardous impact on the tribal people. Due to large-scale deforestation, not only has the ecological balance been



Table 1

Name of disease	Number treated								
	Satisfactory			Satisfactory + Partially satisfactory				Adult + Child	
	Adult	Child	Total	Adult	Child	Adult	Child	Satis- factory	Satisfactory+ Partially satisfactory
PUO									
FEVER + MALARIA	111	174	285	90 (81.08)	28 (73.56)	111 (100.0)	136 (78.16)	218 (76.49)	247 (86.66)
GASTROENTERIC DISORDER	83	116	199	46 (55.42)	81 (69.82)	50 (60.24)	87 (75.00)	127 (63.82)	137 (68.84)
RESPIRATORY DISORDER	45	95	140	28 (62.22)	61 (64.21)	34 (75.55)	69 (72.63)	89 (63.57)	103 (73.57)
NON-SPECIFIC ARTHRITIS	131	5	136	34 (25.95)	2 (40.00)	56 (42.75)	2 (40.00)	36 (26.47)	61 (44.85)
DERMATITIS	17	55	72	6 (35.29)	18 (32.72)	10 (58.82)	35 (63.63)	24 (33.33)	45 (62.50)
WORM INFESTATION	19	77	96	6 (31.58)	21 (27.27)	7 (36.84)	22 (28.57)	27 (28.12)	39 (40.62)
OTITIS MEDIA	4	18	22	1 (25.00)	10 (55.55)	1 (25.00)	14 (73.68)	11 (47.82)	15 (65.22)
CONJUNCTIVITIS	7	24	31	2 (28.57)	13 (54.16)	2 (28.57)	15 (62.50)	15 (48.38)	17 (54.84)

Table 2

Sect and State-Wise Distribution of Tribal Doctors Interrogated

- A - can treat more than 25 to 30 ailments
 B - can treat more than 15 to 20 ailments
 C - can treat less than 15 ailments

Sect	Total	W. Bengal			Total	Bihar			Total - 347			
		A	B	C		A	B	C	Total	A	B	C
Santhal	54	18	24	12	24	9	15	-	37	6	14	17
Bhumij	5	2	2	1	-	-	-	-	14	-	10	4
Munda	2	-	2	-	5	-	2	3	10	-	4	4
Paharia	-	-	-	-	26	7	13	6	-	-	-	-
Juang	-	-	-	-	-	-	-	-	12	4	5	3
Kharia	2	2	-	-	-	-	-	-	6	-	2	4
Bhuinya	-	-	-	-	-	-	-	-	14	3	7	4
Lodha	4	1	1	2	-	-	-	-	9	2	4	3
Gond	-	-	-	-	-	-	-	-	9	2	4	3
Ho	-	-	-	-	4	-	-	2	3	1	2	-
Binjal	-	-	-	-	-	-	-	-	5	3	1	1
Ssabar	-	-	-	-	-	-	-	-	2	2	-	-
Kol	-	-	-	-	1	1	-	-	5	2	3	-
Khond	-	-	-	-	-	-	-	-	1	1	-	-
Sohora	-	-	-	-	-	-	-	-	1	-	-	1
Behra	-	-	-	-	-	-	-	-	1	-	-	-
Birhor	2	-	2	-	10	7	3	-	-	-	-	-
Oraon	-	-	-	-	3	3	-	-	-	-	-	-
Asur	-	-	-	-	7	1	5	1	-	-	-	-
Kissan	-	-	-	-	-	-	-	-	2	2	-	-
Dalkhond	-	-	-	-	-	-	-	-	2	2	-	-
Dhakor	-	-	-	-	-	-	-	-	1	1	-	-
Bonda	-	-	-	-	-	-	-	-	4	3	1	-
Other												
Backward Castes	13	2	8	3	6	2	3	1	41	15	21	5

Table 3

Number of Patients Treated from April 1989 to March 1990

Name of the disease	Total no. of patients
Non-specific arthritis	176
Pyrexia of unknown origin	78
Leprosy	23
Tuberculosis	16
Non-specific diarrhoea	80
Non-specific dermatitis	21
Weakness	65
Leucorrhoea	53
Dysmenorrhoea	56
Worm infestation	27
Hypertension	30
Pain abdomen	63
Asthma/common cold	29
Filaria	30
Body pain	11
Paralysis	2
Malaria	5
Eye ache	6
Micturition problem	7
Dhatu/meho/garmi	9
Myxoedema	1
Epistaxis	1
Hemeplagia	1
Otitis media	3
Leucoderma	3
Perepheral neuritis	3
Lymphangitis	1
Polio	2
Oligomenorrhoea	1
Periarthritis of right shoulder	1
Paraplegia	1
Constipation	19
Night blindness	1
Chest pain	6
Goitre	1
Post-traumatic muscular pain	2
Oedema	1
Ulcer	3
Piles	3
Epilepsy	1

Table 4

Special Investigations

Investigation	Total no.
X-ray for tuberculosis	9
Sputum for AFB	7
Lepramin test for leprosy	14
Smear for leprosy	10
Anti-streptolysin 'A' Titre	
for rheumatoid arthritis	11
Blood for microfilaria	29

disturbed, but the collection of medicinal plants has become increasingly difficult. Often a person has to travel several kilometres to find a single plant. Furthermore, these valuable plants which grow in the shade of large trees have failed to regenerate themselves in the face of deforestation and forest fires caused increasingly

Table 5

Investigations of Special

	Total number	Male	Female	Child	R log
<hr/>					
Tuberculosis	25	15	7	3	6
<hr/>					
Rheumatoid arthritis	209	69	128	12	
<hr/>					
Leprosy	27	16	9	2	
<hr/>					



	ESR	Sputum	(+ve)	(-ve)
Radio- logically (-ve)				
3	23 High	7	6	1
Anti-Streptolysin 'O' Titre				
Total : 10 = All negative				
Rest : On-going				
66				
Not high				
	Lepramin test done	Leucocyte migration	Smear	
	14	On-going	10	
25	All were negative		Six positive	
High				



by man's negligence. Finally, industrial effluents from paper mills and the copper industry are compounding the already precarious situation. During our study we also discovered that state health facilities like a PHC or a sub-centre were available only at a distance of 10 to 20 km, and while the tribal doctor was fast losing importance, quackery was rampant. We are, of course, aware of our deep involvement with traditional systems of health care and the attendant danger of exaggerating the efficacy of such a system. But we must strongly dispute the modern elite notion which sees traditional systems as steeped in myth.

Implementation

'Operation Akhra' (OA), we believe, is the only plausible solution to reviving traditional health care, as also to combating at least the common ailments from which the tribals suffer. It is an unhappy fact that while modern state health facilities have not touched these remote areas, the people have often been exposed instead to quacks and other exploitative practices.

The term 'Akhra' denotes a 'functional unit' which renders traditional curative services to forest-dwellers, as also extends knowledge of this system. The primary objectives of OA are:

1. To organise supportive structures—youth and women's groups—for the propagation of traditional health culture
2. To create awareness of the importance and efficacy of this system
3. To generate concern for the environment, forest protection and preservation of valuable medicinal plants
4. To amalgamate the more positive aspects of the modern systems of health with the traditional culture
5. To prepare, process and document herbal medicines used in this traditional system

OA was first restricted to the three states of West Bengal, Bihar and Orissa and later extended to other areas as well. In West Bengal, Operation Akhra is functional in Nayagram, Midnapore and Purulia, in Bihar in Singhbhum, and in Orissa in Baripada. Where OA has been successful, support structures have been created to disseminate knowledge of this indigenous system of health care. Effective curative services have been provided for common ailments, and more chronic diseases like TB, leprosy, rheumatoid arthritis, asthma and menstrual disorders have also been treated with a marked degree of success. More definite results will only be forthcoming once the research is completed. Traditional medicines have been prepared under the guidance of tribal doctors, and in some areas nurseries have been set up for the cultivation of medicinal plants.

Under OA, expertise from both traditional and modern systems of health care is brought together to help build an integrated and culturally acceptable health system for the forest-dwellers. Thus, certain investigations like blood, urine, stool and sputum tests, and radiological examinations are carried out to corroborate clinical findings. The most important achievement of OA has been the selection of a few youth from among the local people who have been trained by the tribal doctors. They have formed a task force to extend knowledge of this system of health care; to promote the cultivation of medicinal plants; to create awareness of the importance of protecting the forests and its products; and, above all, this task force has been trained to prepare, process, document and administer tribal medicines. In fact, it is they who will undertake primary health care in future, thus ensuring the perpetuation of this traditional culture.

Box 1

MEDICINE AND SILVICULTURE—A STEP IN THE RIGHT DIRECTION

The North Zone Silviculture wing based in Dharwad is one of the few organisations that has recognised the consequences of not conserving and propagating medicinal plants. It is on these plants that rural communities have depended from time immemorial for curing illness—now, they are forced to seek allopathic cures instead.

The silviculture wing has established a medicinal plant garden in Terakanahalli village near Sirsi in Uttara Kannada. The garden occupies an area of 170 acres on which grow 200 species of herbs, shrubs and creepers, and 100 tree species. The aim is to eventually raise 1,200 plant species of medicinal value available in Karnataka—the common ones being *baje*, *uttarani*, *kirunelli*, *amritaballi* and *karithumbe*. Virtually every part of each of these plants has a role to play in curing common colds, coughs, dysentery, fever, jaundice, hypertension and disorders of the uterus. This centrally-sponsored scheme is an offshoot of a national-level workshop on medicinal plants held in Tattihalla near Maliyal a few years ago. The yield from these plants will be made available to traditional medical practitioners and ayurvedic institutions, and saplings will also be provided to those who wish to raise their own medicinal gardens. Several panchayats have come forward to raise such gardens.

Source: Meeting Point of Medicine and Silviculture, *Deccan Herald*, 26 January 1991 (E. V. Sathyanarayana).

Our experiences with OA in these remote tribal belts have brought into sharp focus the lacunae in the present system of health care. National health programmes are far from holistic in approach, based on a reductionist model. The close relationship between man, health, ecology and culture has been neglected in health planning and execution. Instead, the wanton exploitation of natural resources and the creation of a modern system of health care which is exploitative and geared to the needs of the elite, have not only shattered the human-environment balance but alienated the masses from the system of health care. How have the poor forest-dwellers



Box 2

OPERATION AKHRA AT DULDA RAHANAGAR, SHAMAKHUNTA BARIPADA, ORISSA

- OA has been successful primarily because of the commitment, motivation and participation of the people
- The total number of patients recorded was 979
- For training, awareness building, cultivation of plants and curative services, the appropriate infrastructure was established with local funds
- Trainees have acquired substantial knowledge of every aspect of this health culture
- Special investigations were carried out to corroborate the findings of tribal doctors in the cases of leprosy, TB, arthritis, etc.
- The results on the cure of leprosy patients are encouraging

been the victims of more than just diseases?

But what of the innumerable development programmes for the tribals?

This was the reaction of angry Birhors who were at the mercy of state-sponsored development programmes planned and implemented without their needs in view. This is only one incident. There are several others—of

Box 3

On 23 August 1987, I stood before a young Oraon by the name of Sree Das Oraon. We were rejoicing because, of the thirty-two patients in the efficacy study, thirty had been completely cured. Some had been chronically ill and had had little relief from modern medicine. But Das smiled and said, 'We have seen the magic of roots and herbs. But when you return tomorrow we return to the compounder for pills and injections—for no cure but only to spend money.' With a burdened heart, I realised the obvious answer was a true revival of tribal medicine.

Box 4

One winter morning, helpless Gunda Ho of Jumnagarh looked at his one-year old son lying in his mother's lap. He was suffering from gastroenteritis and was severely dehydrated. Gunda Ho showed us what he had been giving the child for the past two days—a banned anti-diarrhoeal paediatric suspension which had been prescribed by the local quack. And at a cost of Rs 15 rather than the actual cost of Rs 8.

The illusion of the efficacy of pills and injections—the symbols of modern medicine—had blinded the tribal masses, victims of exploitation, and shattered the base of the tribal practitioner.

educational institutions being set up, for the Juangs and Mundas for instance, with a curriculum quite unsuited to their socio-cultural lifestyles; income-generating programmes for tribal women (the Birhors for instance) who have to first tear themselves away from their traditional occupations; of policies to prevent the tribals from

Box 5

'Who are you? A state agency? Why have we been uprooted from the forests and subjected to a life that is not our own? Give back our forests—we do not want your housing complex. It leaks in the rains, is hot in summer, and cold in winter. Besides, we cannot carry these with us when we move from place to place.'

exploiting the forests without first providing a feasible alternative—what is this if not pseudo-development? Unless planners and policy-makers involve the people themselves in planning development projects, until the tribals' socio-cultural, economic and political lifestyles are given due consideration, until the programmes are accepted as suitable to their own needs, and until there is proper follow-up of projects once accepted and instituted, how can this be called true development? How can the plight of the poor tribals be ameliorated? Finally, how will the essential relationship between man and environment—essential for the health and livelihood of the tribals, as also for the environment—be maintained and sustained?

Is Traditional Health Culture Eroding?

It is often stated that the traditional health culture is in a state of decline or is fast being eroded. Erosion—implying denudation, of something being eaten away—is a loose term that describes a phenomenon rather than a process. The erosion of a culture leads to the total obliteration of customs, conventions and the psychological attachments of the people. Has this ever been observed at the global level with regard to traditional health culture? It is true that socio-economic, cultural and political onslaughts arising out of the erratic exploitation of human and material resources to meet the demands of modernisation have endangered the traditional system. But the fact that it exists today and has stood the test of time, the fact that it is regarded both in India and abroad as an alternative and less hazardous health care system, puts to rest the oft-repeated conviction that this culture is eroding—rather, it should be looked upon as a 'paradigm shift'.

Yes, indeed this traditional system is likely to face a severe crisis of existence unless we can combat the psychological and other factors that are likely to hasten the process: we have to combat the attitude—put forth by the mass media, anti-social and other exploitative agencies—that all that is traditional is without use, an unfortunate legacy of colonial rule; we have to combat the profit-oriented negative aspects of modern health care; we must combat the adverse effect—on the psychology and lives of the tribals—of marketing expensive medication in tribal areas; and above all, we must combat

the danger to the environment. The following diagram is a startling revelation of how much forest land has already been lost, thus destroying the lives of hundreds of tribals who depend on the forests for food, shelter, fodder and medication.

Furthermore, the construction of dams and the growth of industry have dislocated the tribals from their traditional homes and subjected them to an alien environment which might have severe consequences on every aspect of their lives.

If there is any indication that this system is fast being eroded, the cause lies in our heavy dependence on technology—which leads us to view material progress at all costs as the ultimate goal—on profit-oriented modern systems of health care, and wanton degradation of the environment—particularly of plants of medicinal and

commercial value which are used increasingly to meet the needs of large pharmaceutical concerns, thus depriving the forest-dwellers.

No one can deny the contributions and achievements of modern health care. But at what cost? While a certain degree of cultural transformation is inevitable, why not look for the best in both worlds? Why rely blindly on modern systems alone to the exclusion of traditional indigenous systems of health care?

The Future

In the 1991 Census, hundreds of villages were added to the existing 600,000 enumerated. It is obvious that the provision of better health services is going to be difficult,

Box 6

EXTINCTION OF MEDICINAL PLANTS

In the past, *vaidyas* or traditional practitioners formulated their own herbal remedies to suit the needs of the patient based on his *prakruti* and *vikruti* (physiology and pathology). The resurgence of interest in traditional medicine in recent years has resulted in commercialised formulations marketed by the drug manufacturers. Consequently, centralised production by the industry has led to indiscriminate extraction of medicinal herbs to the detriment of the environment and the country's precious natural resources. Depletion of vital plants of medicinal value appears to have escaped the notice of environmentalists.

The increasing and unacceptable loss of the medicinal plants due to habitat destruction, unsustainable harvesting practices and exploitation by the pharmaceutical industry are of paramount concern in the context of conservation of floral species. Another great threat is that posed by the export of medicinal plants, irrespective of the domestic requirements and alternate regeneration. Lack of documentation of the available quantum of medicinal plants and their utilisation renders the task of quantifying the loss a trifle difficult.

It is not possible to assess the quantum and value of the export of all plants that are used medicinally because trade statistics do not separate medicinal and other uses. The government does not seem to be alarmed by the loss of species and has not yet taken any steps to regulate and monitor exports. Some plants which are endangered and on the verge of extinction are not included under the convention on International Trade in Endangered Species (CITES) of wild flora and fauna.

A steadily shrinking forest area has led to herbs becoming scarce with many valuable plants already endangered. On the other hand, the demand for medicinal plants is growing unabated. At present, there are about twenty major manufacturers of herbal drugs in the country, besides about 140 medium or small-scale manufacturers. Thousands of *vaidyas* have their own miniature manufacturing units. On record are about 1,200 licensed small manufacturers. However, the annual production of herbal drugs is Rs 100 crores against the pharmaceutical industry's of Rs 800 crores. Considering the demand for herbal medicines, it is estimated that the production of herbal drugs in India will touch the Rs 4,000 crores mark by the year 2000.

Then of course there are multinationals involved in scouring medicinal species through overt and covert operations. By virtue of the advanced technology at their disposal, they are able to exploit the herbal plants in the developing world to

make new drugs. In the present scenario, the possibility of countries like India forfeiting their sovereignty over their genetic resources is real.

Nature has created an infinite number of compounds in plants. The humblest of the bacterium synthesised during its brief existence contains more organic compounds than all the world's scientific community. After the plant species are explored, valuable extracts are produced and then chemists juggle the molecules to obtain a large number of derivatives. For instance, from the extract of diosgenin, as many as 10 million chemical compounds can be derived. However, the most important step in the chain of processes resulting in the development of a plant drug is locating the plant itself. Tribals are a rich source of information and provide the basis for further research by various agencies in the country.

Western countries, which have developed biotechnology, are very keen to apply it to tropical herbal resources. To achieve their dubious intentions, multinational drug companies are indulging in open loot of rare botanical species from the developing countries. Hundreds of species are siphoned off through international research agencies. Obliging companies in the Third World make the drugs from herbs locally and pass on the compounds to their parent companies in the West. Domination is sought to be formalised by resisting moves to curtail access to the genetic resources and seeking patents and other protection for drugs.

Another aspect of this gross commercialisation of medicinal plants is the demand for certain species. Land use is modified to meet these requirements and many potentially rich species are destroyed from the face of the earth.

From the perspective of the current botanical drug boom, the problem of extinction of species becomes extremely acute. Haphazard and indiscriminate exploitation have obliterated the potential that these plants offer. The plant world which indeed bristles with hundreds of remedial agents, even life-saving ones, would be lost for ever if activities are not initiated to save them from extinction.

Can it be denied that all human cultures have followed a definite historical process—of rise, prosperity and decline? It is believed that in the present scenario, the crisis will befall us yet again by the year AD 2300. A revival of traditional health culture, we believe, is the only means of averting this crisis.

The traditional health culture is caught in the tentacles of an 'identity crisis'.



Box 7

MANIFESTATION OF THE PROBLEM OF IDENTITY OF TRADITIONAL HEALTH CULTURE

	<i>Negative identity</i>	<i>Positive identity</i>
Extra-social expression	myth; voodism	inclusion of other health cultures; cultural synthesis;
Intra-social expression	erosion of health; cultural dominance of anti-people health culture	autonomous, independent and culturally acceptable health care system;
Individual expression	indifference, apathy; self-destruction	self-realisation; non-dependent, social education

if not impossible, through the existing health care system. Our research has convinced us that a synthesis of the traditional and modern systems could provide an effective alternative:

Box 8

THE GREAT HERBAL REVOLUTION

Herbs have formed the basis of traditional Indian systems of medicine. Once, proponents of the Western modern allopathic system laconically dismissed treatment through herbal remedies as an unscientific and orthodox means of treating ignorant patients. Any therapeutic value was explained as being the result of chance rather than design. However, the toxic side-effects and strong dependency caused by allopathic medicines forced drug companies and medical practitioners to view the traditional system with some respect.

The quest to understand its fundamentals and potential also brought about the realisation that herbs promised substantial economic gains. Subsequent experience proved the validity of this premise. The craze for fitness, health and everything natural, at least amongst the elite, has brought us on the anvil of a 'herbal revolution'.

The principle of self-reliance underlying traditional health practices and visions of greater popular acceptance motivated the government to formulate more lenient legal provisions vis-a-vis ayurvedic medicines. The incentives offered by the government in the form of excise duty exemptions for pilot projects prompted the pharmaceutical industry to jump onto the ayurvedic band-wagon. Instead of bringing people closer to their own time-tested practices and cures, the system has been commercialised to such an extent that it has

come to resemble any other commercial channel accessible at any counter.

Ayurvedic digestive or cough drops, herbal sprays as pain relievers, tonics with a high alcohol content—many such non-essential items clutter chemist shops all over the country. Old patents are relicensed or reclassified to elude excise duty. The search for safer natural alternatives is leading to adulteration, exaggerated claims, false classification and reclassification.

Multinational companies, quite early in the game, saw in these products a wondrous world of profits and entered the market with a flourish. A formulation is sought either from a test or a well-guarded family recipe, christened with a catchy name, launched with an impressive ad blitz and packaged in many hues and shapes.

Throughout, the government has chosen to wear blinkers. There is no effective machinery to check quality and prices. Also non-existent is an effective system to check the claims and to make available authentic ayurvedic formulations to meet the real needs of the people. The vast profits accumulated in recent times have deliberately obfuscated the fact that unchecked market trends could be fatal to people's health. Unscrupulous manufacturers are already using cheaper and less effective substitutes or omitting medicinal herbs completely.

There is a lack of authoritative, unbiased scientific information available about new drugs being released in the Indian market. Theoretically, the government drug control authorities are responsible for disseminating information about new drugs as laid down in the Drug Control Policy of 1986. In practice, they don't provide any information.

There have been cases where the drug manufacturers have supplied only one side of the story. The multinationals have been known to provide promotional material with detailed scientific information for the developed countries and another set full of distortions and half-truths for the Third World nations. Doctors trained in the Western system of medicine are at a loss to understand the intricacies of ayurvedic drugs as they are not included in medical curricula and standard textbooks. They may well rely upon the one-sided information supplied by drug manufacturers.

In due course, even the validity of ayurveda; the age-old 'science of life', along with other traditional systems of medicine, could be severely questioned.

1. A working group should be set up at the national level to assess the scope of traditional health care and incorporate it within the national health system
2. The medical curriculum should be modified to take into account the importance of traditional Indian systems of health care
3. Full support should be given to people's participation in the protection and conservation of natural resources, particularly medicinal plants. In fact, the tribals themselves should be encouraged to grow plants of medicinal and commercial value. This will ensure income and help regenerate the herbs and shrubs
4. Operation Akhra should form a model for implementation. Through its awareness generating programme, OA has highlighted the close association between traditional health culture and afforestation. A revival of traditional health care will not only ensure the health and nutrition of the tribals, but also the protection of the environment which accords them this. However, this can be achieved only when the rights of the tribals to the forests are recognised and protected with feasible and appropriate policies and technologies







Health and Culture Among the Underprivileged Groups in India

Preamble

Health is a function, not only of medical care, but of the overall integrated development of society—cultural, economic, educational, social and political. The health status of a society is intimately related to its value system, its philosophical and cultural traditions, and its social, economic and political organisation. Each of these aspects has a deep influence on health, which in turn influences all these aspects. Hence, it is not possible to raise the health status and quality of life of a people unless such efforts are integrated with the wider effort to bring about the overall transformation of a society. The objectives of integrated development are to eliminate poverty and inequality, to spread education and to enable the poor and underprivileged to assert themselves. Health development can be integrated with the larger programme of overall development in such a manner that the two become mutually self-supporting.

Such coordinated and simultaneous efforts to improve and change the entire social order generally yield better results because they are interdependent and mutually supportive (ICCSR-ICMR 1981). Good health and good society go together. This is possible only when supportive services such as nutrition and improvements in the environment and in education reach a higher level.

The health problems and practices of any community are profoundly influenced by an interplay of social, economic and political factors. The common beliefs, customs and practices connected with health and disease have been found to be intimately related to the treatment of disease. It is necessary to take a holistic view of all the cultural dimensions of the health of a community and to relate such a holistic perspective to the overall culture of the concerned community.

Underprivileged Groups

The term 'underprivileged' denotes those segments of the population which do not have a normal standard of living or rights in a community, and thus include the economically weaker sections, socially weaker sections and geographically inaccessible groups, as also the victims of social, political and religious turmoils.

To improve the health status and quality of life of the underprivileged heterogeneous population in India, concerted efforts need to be made to understand the nature and extent of the problems prevailing in their own characteristic socio-cultural milieus. The underprivileged population in India can broadly be divided into the following groups: (a) Scheduled Tribes; (b) Scheduled Castes; (c) Hill People; (d) Mothers and Children; (e) Urban Slum Population; (f) Handicapped Population; and (g) Other Backward Communities.

These groups usually occupy inaccessible, poor or barren areas detached from the mainstream, without even basic amenities such as communication facilities, markets and educational institutions. They are mostly landless or have marginal landholdings, never enough to survive. Social stigmas force them to occupy the lowest rung of the social ladder, leading to exploitation and victimisation. Obviously, this situation bars them from education, service, and trade and commerce, which the so-called advanced population enjoys. Instead, traditional practices such as magic and witchcraft, primitive technological approaches, poor sanitation, under- or non-utilisation of available resources, and inability to understand the function of money and monetary transactions is the reality with which they are confronted.

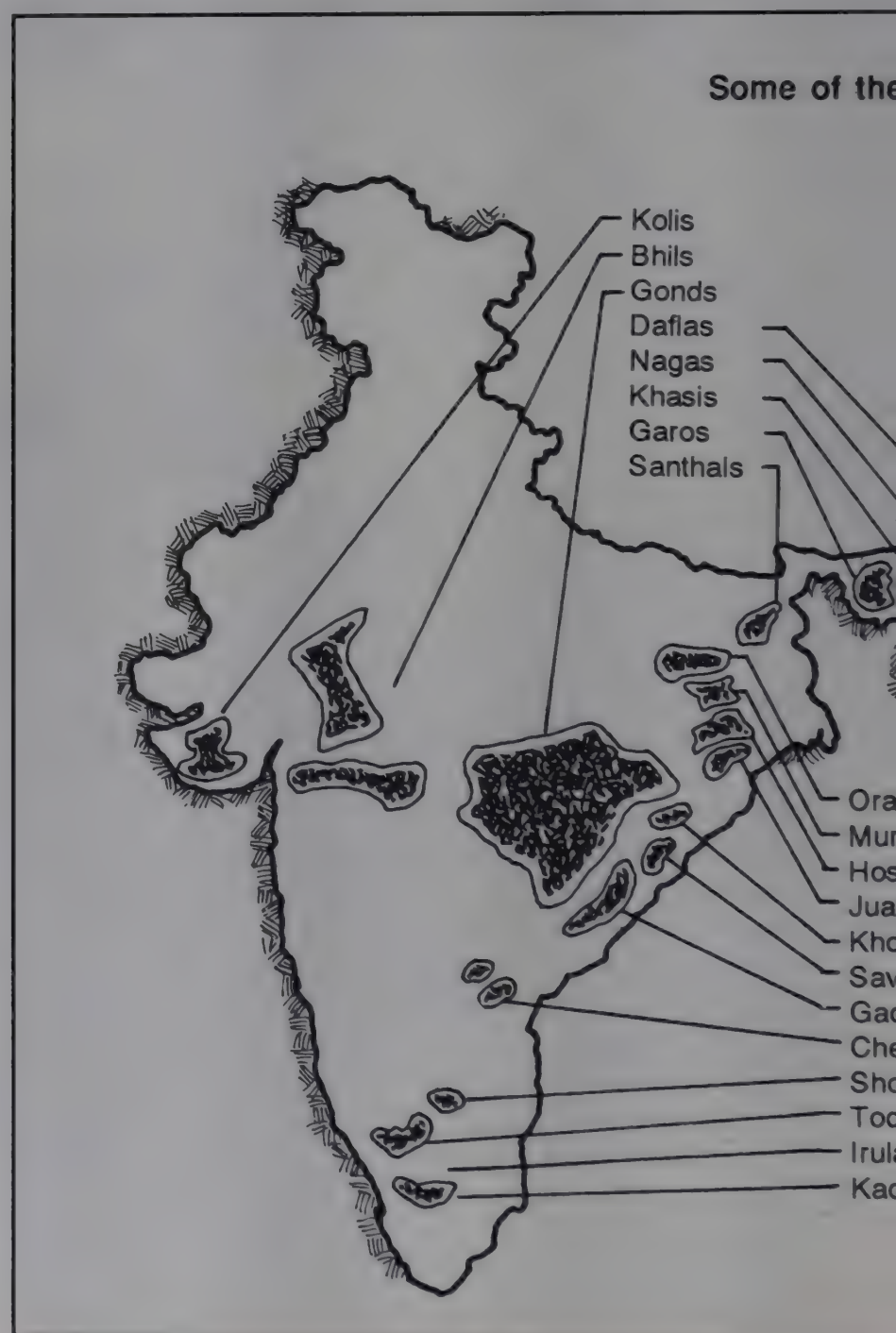
With the help of census data, various commission reports and sample survey techniques, it is possible to identify the different underprivileged groups. But in order to elicit detailed, in-depth and sensitive information about these social groups, special methods like semi-structured questionnaires, participant observation, genealogical studies and the case study approach have been frequently applied.

Scheduled Tribes

Tribal groups in India, comprising more than 400 communities, constitute 7.76 per cent (1981 Census figures) of India's total population. These tribal groups inhabit widely varying ecological and geo-climatic conditions and are variedly concentrated throughout the country (S.K. Basu 1987). The largest tribal population is found in Madhya Pradesh (11.98 million), but the largest proportion of Scheduled Tribes to the total population is found in Mizoram (93.55 per cent), followed by Nagaland (83.99 per cent). There is a bewildering variation in the population size of individual tribal

groups, ranging from as few as 5 persons among the Arandans to more than 7 million Bhils (S.K. Basu 1991a). Literacy in India, defined as the ability to read and write with understanding in any language, was 36.2 per cent in 1981. Literacy among the tribals in comparison to the total population is even lower (16.4 per cent), and especially so among tribal women (8 per cent).

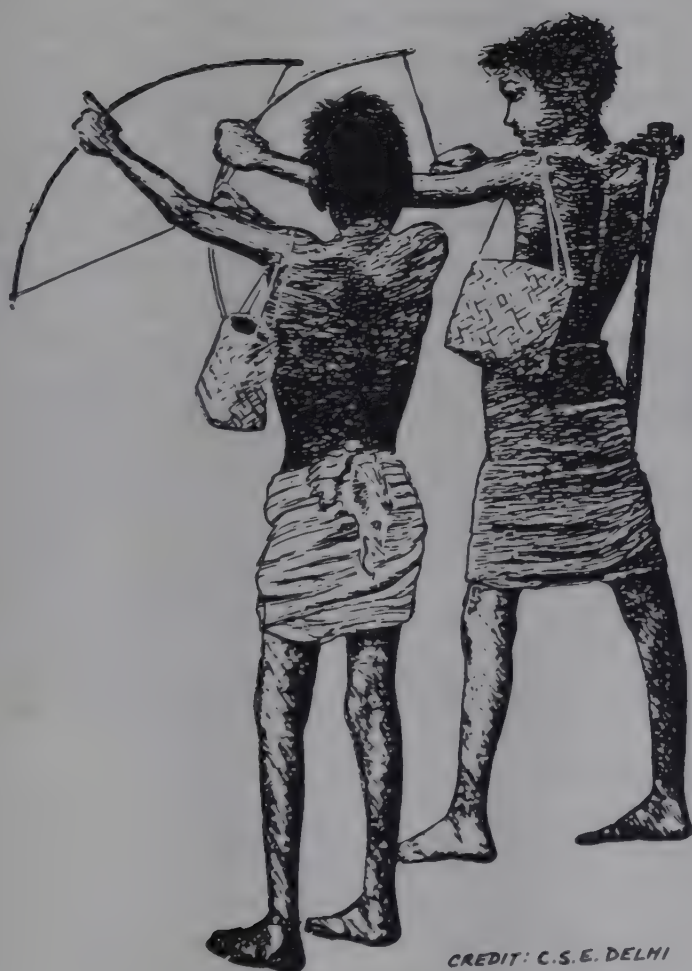
Through the ages, the tribal groups have retained their individual social and cultural identities through the rigorous practise of different social customs. This led to the formation of biological isolates with their specific individual socio-cultural milieus. The several tribal groups in India are at different stages of social, cultural and economic development. The cultural pattern varies from tribe to tribe and from one region to another. Agriculture is the primary occupation of the largest number, a few are engaged in mining, plantation, cottage industries, fishing and animal husbandry. The more backward communities, like the Onges, the Jarawas and the Andamanese of the Andaman Islands, the Birhors of Bihar, the Malapandarams and the Arandans of Kerala,



are virtually in the food gathering and hunting stage of economy. On the other hand, communities like the Lushais and Khasis of Assam and Meghalaya are fairly advanced and have made significant progress. The Dhodias and the Dublas of Gujarat and the Minas of Rajasthan are hardly distinguishable from their neighbours in the mainstream.

It must be recognised that Scheduled Tribes consist of various communities of different ethnic origins and socio-cultural levels with different rates of growth among them. While some Scheduled Tribes have shown a positive and pronounced growth rate, others have not. The Scheduled Tribes which are growing at a fast pace have a large population base and are well-settled agriculturists as well—the Bhils and the Gonds, for instance. On the other hand, tribes like the Onges and Jarawas of the Andaman Islands have a small population, and are either declining or not expanding fast enough. These are mostly the primitive or less-advanced tribes living in isolation as semi-nomads dependent on a food gathering and/or hunting economy.

tribes in India



The criteria generally followed in the identification of such primitive tribal groups are: (a) pre-agricultural level of technology, following a hunting-gathering way of life; (b) extremely low level of literacy; and (c) small, stagnant or diminishing population (Government of India 1986-87). The word 'primitive' reflects the time scale of our civilisation. Most primitive communities are characteristically stable and are trying to maintain a constant relationship with the environment. Seventy-four primitive tribal communities have been identified by the government in fifteen states and Union Territories for special socio-economic development programmes (Government of India 1989). The health of these tribal groups is a function of the interaction between socio-cultural and socio-biological practices, genetic attributes and environmental conditions. The widely varying prevalent health practices, use of indigenous herbal drugs, taboos and superstitions are also responsible for determining the health behaviour and health status of these tribal groups.

Scheduled Caste Groups

The Scheduled Castes in India are recognised by the Constitution as disadvantaged and backward groups. These groups, because of their physical or cultural characteristics, are singled out from others in society and regard themselves as objects of collective discrimination, even though they have from time immemorial been an integral part of our caste system. The situation of the Scheduled Castes is the result of economic exploitation and deprivation, and structured and organised inequality in their most extreme form over the centuries, particularly in the rural society and economy.

There are 1,108 Scheduled Caste groups in India, constituting 15.75 per cent of the total population (1981 Census figure). They are distributed in varying number throughout India, except in Nagaland and in the Andaman and Nicobar and Lakshadweep Islands. Among the states and Union Territories, Punjab has the highest percentage of Scheduled Castes in relation to the total population of the state, i.e., 26.87 per cent, followed by Himachal Pradesh (24.62 per cent) (1981 Census figures). Mizoram, on the other hand, has the lowest percentage of Scheduled Castes (0.03 per cent).

Hill People

The hill areas of the country, particularly the regions of the Himalayas and the Western Ghats which constitute 21 per cent of the total land area and contain 9 per cent of the total population of the country, support the basic life-giving natural resources but have fragile and sensitive eco systems. The poor and backward hill communities inhabiting vast tracts of the Cis-Himalayan and other hilly regions face special problems which directly or indirectly affect their health and quality of life. Rugged

terrain and inaccessibility lead to isolation on account of the difficult movement of men, materials and knowledge. These regions are characterised by overall poverty, due mainly to the lack of resources, ignorance and awareness. Expansion of cultivable land in a family does not take place in proportion to increase in family size. Further, the number and types of crops that can be grown is restricted in the hills. Consequently, the intake of calories is low as compared to the requirements, leading to a high prevalence of nutritional deficiency disorders.

Mothers and Children

Children under 14 years of age and women in the childbearing age constitute about 60 per cent of the population. Children and expectant mothers are the most vulnerable sections of the population. Pregnancy and childbirth, which are normal biological functions, become associated with many grave risks which can endanger their lives. Similarly, infancy and childhood are periods of growth and development when children are exposed to several hereditary and/or environmental stresses which can have an adverse impact on their growth.

Urban Slum Population

Slums are the creation of industrialisation. In all the big metropolitan cities of India, more than one-fifth of the population lives in slum areas. It is also estimated that 10 to 12 per cent of the population is comprised of slum dwellers, a figure which is increasing at an alarming rate. Slum areas are characterised by over-crowding, poor environmental sanitation because of the non-existence of infrastructural amenities like sewage lines, non-availability or lack of potable water supply, absence of a drainage system and proliferation of socio-economic maladies.

The urban slum population is heterogeneous, a 'floating' migratory group that is both economically and socially deprived. Coupled with the non-availability of health services and poor living conditions is the fact that this group has no traditional system of health care to fall back upon.

Handicapped Population

The National Health Policy adopted in 1983 placed emphasis on providing health care and physical and social rehabilitation to the mentally retarded, deaf, dumb, blind, physically disabled, infirm and the aged. According to the National Sample Survey conducted in 1981, about 12 million persons are physically handicapped, i.e., they fall within the category of those with locomotor disability, visual, speech and hearing impairments. Another 2.5 per cent of the population is estimated to be mentally retarded on the basis of small

surveys done in different parts of the country from time to time. Accordingly, the disabled population today is estimated to be approximately 36 million. A separate paper on Disability in this volume will reveal how much (or how little) is being done for this group of underprivileged.

Other Backward Communities

This category broadly includes (a) nomads who have taken to begging, mimicry, jugglery, dancing, etc.; (b) landless labourers; (c) tenants without occupancy rights/insecure land tenures; (d) small landowners with uneconomic holdings; (e) artisan and occupational classes without security of employment as traditional occupations have ceased to be remunerative; and (f) communities without sufficient education and representation in government services (Government of India 1955).

Concept of Health and Perception of Diseases

Attention is now being increasingly focused on the problem of rural health, particularly with regard to the tribals and other backward groups who represent a sizeable proportion of the population in India. The World Health Organisation defines health as, 'a state of complete physical, mental and social well-being and not merely the absence of disease and infirmity' (WHO 1971). However comprehensive, this has rarely been practicable. Well-being is defined as a harmonious relationship between an individual or group and the physical, biological and socio-cultural environments, as also the feeling of satisfaction that is associated with this. But the concept of well-being is difficult to apply in practice, as it includes a large subjective component, namely, the 'feeling of satisfaction', which increases in magnitude as one moves from physical, through mental, to social well-being. For instance, an individual or population with a poor level of well-being by our standards might experience instead a feeling of satisfaction with life. Among the Pahira tribal population, 30 to 45 per cent mortality before the age of 15 years is accepted as normal (A. Basu 1969). The mothers are used to frequent childbearing with the aim of making up for the loss, despite the consequent risk to their own survival and physical well-being.

The concept of health, disease, treatment, life and death among the tribals is as varied as their culture. Tribal society is guided by traditionally laid down customs to which every member is expected to conform. The fate of the individual and the community depends on their relationship with unseen forces which intervene in human affairs. If men offend them, the mystical powers punish by causing sickness, death or other

natural calamities. In tribal society, disease is seen to be caused by the breach of some taboo or by hostile spirits, the ghosts of the dead. They believe in the existence of benevolent and malevolent spirits, the former playing a protective role, while the latter are considered to be responsible for causing diseases and epidemics. Magico-religious practices are resorted to for the treatment of diseases.

Tribals are staunch believers in the natural theory of diseases. According to them, human life is governed by the sun, rain, wind, and other elements, and when man falls out of harmony with nature, he becomes susceptible to diseases and accidents. Hence, the first step is to restore the balance and harmony with nature through rituals. Among the Santhal tribal population, for instance, there exists a scientific theory of disease which to them is as natural as the theory that infections are caused by bacteria. According to them, disease can be caused by a *tijio*, which may be large or very microscopic (Gupta 1986). These *tijos* enter and are embedded in different parts of the body and can cause leprosy or hydrophobia. The *tijio* germs are often believed to be collected by witches in order to spread diseases. The Santhals also believe that evil men, by dint of their magical powers, intrude the body with stones, wood, pebbles or lumps of hair which cause unbearable



pain. The *ojha* sucks these out from the body through rituals which, people believe, are responsible for curing their pain. Such beliefs are shared by other tribal groups like the Malpaharias, Saurias, and other groups belonging to the Rajmahal Hills of the Santhal Parganas in Bihar.

Health Problems

The conceptualisation and measurement of health and the quality of life are gaining increasing attention in the health services. Since the concept of health has different meanings in different social systems, the health problems of a community cannot be studied in isolation from the social network of the concerned community.

The health problems of the underprivileged require special attention as they have distinctive problems. This is not so much because they have a special *kind* of health, but because of their special *placement* in difficult areas, and the difficult circumstances in which they live. The health, nutrition and medico-genetic problems of diverse tribal groups inhabiting widely varying geo-climatic and ecological settings have been found to be unique and present a formidable challenge for which appropriate solutions have to be found by planning and evolving relevant, need-based research studies. Tribal groups, unlike the Scheduled Castes, are homogeneous, have developed a strong magico-religious health care system and wish to survive and live in accordance with their own norms. Living as they do in remote and isolated areas, they are beyond the reach of proper and appropriate health services. Thus, they continue to interact within their own group alone, develop strong cultural



Pottery design — Links with Nature

ties and live within a closed system. Scheduled Castes, on the other hand, are more identifiable with the rural population but are subjected to economic exploitation, deprivation and social ostracism.

Widespread poverty, illiteracy and malnutrition, lack of personal hygiene, absence of safe drinking water, sanitary living conditions and health education, poor maternal and child health services, and ineffective coverage by national health and nutritional services, have been delineated in several studies as the possible contributing factors for the dismal health condition prevailing among these vulnerable groups. It has been found that certain diseases like goitre, yaws, malaria and guinea-worm are endemic in tribal pockets (Government of India 1989). Besides these, genetic disorders have been found to occur in several tribal and Scheduled Caste groups. The Adiyani tribal group of north Wynad, Kerala, and the Scheduled Caste community of the Maharas in Andhra Pradesh have been identified as groups showing the highest incidence of sickle cell disease—32 and 38.21 per cent, respectively (S.K. Basu 1991b). A high frequency of G-6-PD red cell enzyme deficiency has been reported among the tribal (19 per cent) and Scheduled Caste groups (26.08 per cent) of Bastar district in Madhya Pradesh (Basu et al. 1989). This situation is further complicated by the prevalent norm of consanguinity among different tribal populations (S.K. Basu 1991b), for instance, the Paniyan tribal group of Kerala.

Many primitive tribal communities such as the Onges, Jarawas and Shompens in the Andaman and Nicobar Islands are facing extinction. There might be several reasons for this and might differ from population to population (Verma 1978). Some of the reasons/factors gleaned from investigations include endemic diseases like malaria; induced abortions, inbreeding; addiction to opium; custom of eating the tubers of *Dioscorea*, which might be the cause of sterility as they contain substances used in oral contraceptives; a disturbed sex ratio unfavourable to women; and a high frequency of genetic disorders like sickling and G-6-PD enzyme deficiency. Thus, there is an urgent need for studies on different tribal groups of India, particularly those with a small or declining population in inhospitable environments. These studies should attempt to elicit information about their fertility, mortality and morbidity patterns, consanguinity status, food habits, physical growth trends, and genetical-environmental disorders, in order to delineate the high risk groups.

The few existing studies have not revealed a positive health scenario. A high incidence of malnutrition was observed in some primitive tribal groups (S.K. Basu 1991a) in Phulbani, Koraput and Sundergarh districts in Orissa, as also among the Bhils and Garasias of Rajasthan, Padars, Rabaris and Charans of Gujarat, and Bondas of Orissa. The absence of milk in the daily diets of preschool tribal children is a rather alarming fact. This

Box 1

TRIBAL HEALTH PATTERN IN BASTAR

Tribal culture has thrived in a markedly isolated environment. The distinct ecological and geo-climatic conditions and biological isolation have combined to create unique socio-cultural patterns and milieus. However, the onslaught of developmental processes and state interventions have created a disturbing health pattern. The tribals are among the most vulnerable groups in terms of health indicators like mortality, morbidity and fertility. Different tribal groups exhibit varying levels of health status while some have been assimilated in the mainstream, others are on the verge of extinction. It is a great challenge for the decision-makers to assess the pattern of health-seeking behaviour and its implications for health care strategies.

The National Institute of Health and Family Welfare conducted an in-depth study among the various tribal groups of Bastar to assess the complex interaction between genetic, genetical-environmental and socio-cultural factors which cause diseases among these groups. The findings of the study provide useful insights into the lifestyles of a people, their health status, their demands and utilisation of health services.

Bastar, one of the largest districts in India, also has the largest concentration of tribals. According to the 1981 Census, 67.78 per cent of the inhabitants of Bastar are tribals. The major tribal groups include the Gonds, the Murias, Madias, Abhuj Madias, Dhurwa Doras, Halbas and Bhattas.

These groups are strictly endogamous and their social organisation is governed by the totemistic exogamous clans, normally animalistic in nature. Killing or injuring the totem, animal or tree is considered sacrilegious. The hierarchical status of the various totems ultimately decides the status of the clan in the society. The Halbas enjoy the highest status, their customs being more akin to Hinduised religious customs and beliefs. The Murias and Madias are considered to be on the lower rung of the social hierarchical scale.

These tribal groups depend mainly on agriculture and forest produce for sustenance. Their agricultural methods are primitive and production is oriented to subsistence requirements. They supplement their income by occasional agricultural labour, contract labour, bamboo cutting, fishing and basketry. The barter system is still the primary method of exchange of commodities. As large amounts of their income are spent on social and religious ceremonies, they are most often financially hardpressed. Low literacy levels compound their ignorance and unawareness of their surrounding environment and they remain enveloped within magico-religious beliefs and taboos. Their staple food consists of rice, millet, tubers, roots and wild fruits. Non-vegetarian food is consumed only when available. Milk is taboo and based on the belief that a woman will not lactate if a calf is deprived of milk. Thus, these groups are lacking in a high-protein diet.

With low levels of literacy, small landholdings and large families to support, the tribal groups are ignorant and unaware about the availability and use of technical means of increased production facilities. Dependence on the natural sources of water and single crop cultivation has them caught in the vortex of low income, lack of aspiration and competitiveness.

Among all the tribal groups, consanguinity is practised to a varying degree, subject to the availability of mates. The highest frequency of consanguineous first cross-cousin ma-

trilateral marriages was observed among the Murias and Madias (18 per cent) and the lowest among the Bhatras (5 per cent). The Halbas also practise consanguinity though they follow more Hinduised customs and practices. Mating patterns contribute significantly to the ultimate mortality and morbidity profile of the tribals.

The morbidity pattern among the groups is more or less similar. The most common ailments are diarrhoea, dysentery and skin diseases, with a frequency of about 30 per cent each. Other diseases like malaria, tuberculosis, leprosy, venereal diseases, pneumonia, pyrexia of unknown origin, non-healing ulcers, liver disorders, urinary tract infection are also not uncommon and occur with a frequency of less than 10 per cent. Besides, cases of mental abnormality, epilepsy, deafness and dumbness, polydactyly, defective eye vision, skeletal deformities, inflammation of the oral cavity, etc., have also been observed.

Absence of proper ventilation in the thatched houses, enclosures for animals within the household compound and dependence on ponds, rivulets, wells and ditches for drinking water considerably increases their susceptibility to diseases and infections.

The overall fertility rate of the different tribal groups taken together is 5.87—higher than that for rural non-tribal population groups of Madhya Pradesh (5.18) and the country as a whole (4.55). In addition, life expectancy at birth is estimated to be 41.9 years as against 54.4 years for the overall Indian population.

Maternal and child care is largely neglected among these tribal groups. Most pregnant women are not inoculated against tetanus. From the inception of pregnancy to its termination, no specific diet or supplement is given to the woman. More than 90 per cent of deliveries are conducted at home, attended by the elderly ladies of the household without any precautions to avoid infections. Services of the paramedical staff are secured only in extreme cases.

In the case of child care, a breast-fed infant in the first year does not get any supplementary diet. Vaccination and immunisation of infants and children are inadequate. Poor personal hygiene renders children below 5 years most vulnerable to infections.

The tribals' firm faith in their own system of health care has resulted in an almost hostile attitude towards the modern system. However, their response to this latter system has been found to be more positive in areas where the services are available at a short distance. Curiously, it was observed that a tribal would not mind travelling 8 to 10 km on foot to the weekly market but would not do so to receive medical help. Generally, they combine the visit to the PHC with their visit to the market. In many cases modern medical services are not utilised because of the long-term treatment and expensive drugs. In case of hospitalisation, the members of the family attending the patient face problems of board and lodging at the PHC, besides the loss of several days' work in the field.

*Dr S.K. Basu and others at the Department of Population Genetics and Human Development, National Institute of Health and Family Welfare, have, since 1982-83, been working on various aspects of tribal health, with particular emphasis on nutritional trends, genetic disorders, health seeking behaviour, and fertility, mortality and morbidity patterns.

is related to the custom that prohibits the milking of cows among many tribal groups. The infant mortality rate (IMR) is considered to be one of the most sensitive indicators of the health status of a community. Alarmingly high infant mortality rates (more than 1,440 per 1,000) have been observed among the tribal populations of Andhra Pradesh, Gujarat, Madhya Pradesh and Uttar Pradesh.

A survey in the Kumaon hills in Uttar Pradesh (Gulati 1987) revealed such nutritional disorders as lower weight, less head circumference, low height, even triceps skinfold below standard. Among the parasitic infestations, roundworm was found to be most common. Haemoglobin levels were found to be particularly low in one Himalayan village situated at a height of 12,000 feet.

A high incidence of goitre has also been found in the hill regions: 30 to 90 per cent of the population was found to be affected and more than 10 million people suffered. Endemic goitre and endemic cretinism are widely prevalent in the Indian subcontinent. The most intense endemic belt runs along the slopes, the foothills and the adjacent areas south of the Himalayas, extending over 2,400 km from Kashmir in the west to the Naga Hills in the east. The most tragic manifestation of endemic goitre in the progeny of victims is cretinism, deaf-mutism and idiocy. Four per cent of the population in a Himalayan tract was found to be deaf-mute in an area where the prevalence of goitre was 40 per cent (see Gulati 1987).

A health and morbidity survey in four urban slums of Delhi revealed that (a) the population below the poverty line varied from 46.3 per cent to 19 per cent in different slums; (b) about 70 to 78 per cent of the women were illiterate; (c) there was a high incidence of neonatal, infant and maternal mortality; (d) a greater prevalence of malnutrition in females and children; (e) poor coverage by immunisation, ICDS and vitamin A prophylaxis programmes; and (f) poor availability of MCH services (Bhatnagar et al. 1986).



Socio-Cultural and Ecological Determinants of Health

Every culture, irrespective of its simplicity or complexity, has its own beliefs and practices concerning diseases and evolves its own system of medicine in order to treat these diseases. It is, therefore, important to study in depth the various social, cultural and ecological determinants affecting the health status of underprivileged groups. In a tribal community, the treatment of disease is not always an individual or familial affair. The decision regarding the nature of treatment might be taken at the community level. In the case of some specific diseases, it is not only the diseased person or his/her family, but the total village community that is affected. All the other families are expected to observe certain taboos and food habits, the non-observance of which often calls for action by the village council. One cannot deny the impact of this psychological support in the context of treatment and cure which is very common in tribal communities. In most of these communities, there is a wealth of folklore related to health. Certain practices are recommended to avoid illness or disease, others are prescribed in order to achieve better health. Documentation of this folklore available in different socio-cultural systems may be very rewarding and could provide the model for appropriate health and sanitary practices in a given ecosystem. Maternal and child care is an important aspect of health-seeking behaviour, which is largely neglected among tribal population groups (S.K. Basu et al. 1990). Expectant mothers are often not inoculated against tetanus. From the inception of pregnancy to its termination, no special nutritious diet is consumed by women, and their intake of iron, calcium and vitamins during pregnancy is poor. More than 90 per cent of deliveries are conducted at home, attended by elder women of the household. No specific precautions are observed at the time of these deliveries, which often results in an increased susceptibility to various infections. The services of paramedical staff are secured only in cases of difficult labour. It has been observed that a specially prepared concoction of various herbs known as *kasa pani* is given to the mother on the third day after delivery. This is known to have a soothing effect, helps in recovering lost energy and also acts as an antibiotic. Nevertheless, maternal mortality directly related to pregnancy and childbirth has been found to be appreciably high among the tribal populations of Bastar district. In addition, several women suffer from ill-health due to pregnancy and childbirth in the absence of a well-defined concept of health consciousness.

As far as child care is concerned, both rural and tribal mothers breast-feed their babies. However, most of them tend to adopt harmful practices: they discard the colostrum, give the baby prelacteal feeds, delay the initiation of breast-feeding and the introduction of



complementary feeds. Vaccination and immunisation of infants and children too is incomplete. Since the level of personal hygiene is low, children under 5 years of age suffer the most and are vulnerable to infections. In addition, certain extreme magico-religious beliefs and taboos tend to aggravate these problems.

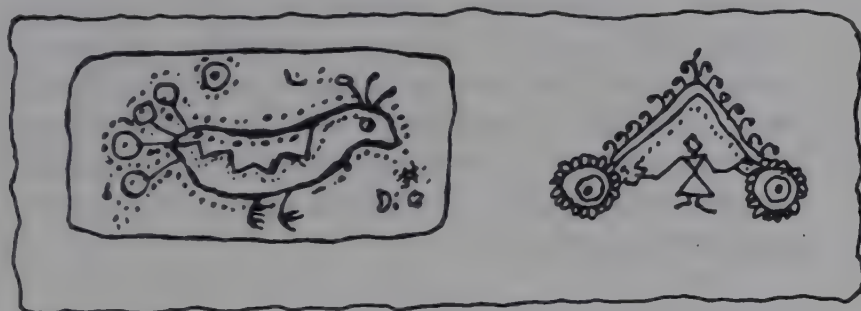
The Bastar tribal people are well-known for their resistance to modern medical treatment as a result of their firm belief in their own rigid and well-developed system of primitive medicine. They believe strongly that a disease is always caused by hostile spirits, ghosts or by the breach of some taboo. Thus, they first seek remedies through magico-religious practices to propitiate the supernatural powers. The cure or treatment of the disease lies in appeasing the wrath of the Gods and evil spirits and by strictly adhering to the punishment meted out in the event of a breach of taboo. The *sirha* or *gunia* is supposed to have powers to identify the angry Gods and evil spirits.

Herbal or indigenous medicines collected from the forests rank second as a means of treating diseases. *Tulsi* leaves and turmeric powder are used to cure fevers and

injuries. There is also evidence to suggest that these groups use indigenous herbal preparations to avoid pregnancies, and for the treatment of infertility and other common ailments.

The tribals of Bastar district sometimes avail of the ayurvedic system of medicine, in addition to the traditional and indigenous system, as a third means of curing diseases. While they utilise the services of the ayurvedic dispensaries provided by the state government, they prefer to consult local practitioners. But their attitude towards modern medical care is fairly hostile. Their level of education, exposure to the outside world and deep-rooted belief in magico-religious practices are not the only reasons for this. The personnel at the primary health centres do not associate themselves with the tribals. This results in the latter's reticence to approach the PHC personnel for help. Any decision to resort to modern medical care is most often influenced by the clan chiefs, *patels*, village headmen and heads of hamlets/households.

Health and treatment are closely interrelated with the environment, particularly the forest ecology. The traditional health care system is based on their observation



and deep understanding of nature and the environment. As mentioned, many tribal groups use the different parts of a plant not only for the treatment of diseases, but for population control as well (Chaudhuri 1990). An in-depth scientific investigation of the various herbs and an



understanding of the ecology could provide the modern treatment of various diseases a new dimension. Many tribal populations, for instance, plant particular shrubs to guard against insects. Could not these shrubs replace insecticides, as the former would not adversely affect the environment and might help preserve the ecological balance? Could our modern system not benefit from the knowledge of centuries? There exists a definite nexus between forests and nutrition. It has been noted by many that tribals living in remote forest areas have a better overall health status and eat a more balanced diet than tribals living in less remote areas. There is no doubt that any disturbance in the eco-system is likely to affect this balance and cause the spread of disease and other maladies. The mode of utilisation of available natural resources thus often determines the long-term impact on health.

Health Care Programmes

The National Health Policy (Government of India 1982) as well as the revised 20-Point Programme of the Government of India stressed the need for improving the health status and quality of life of the underprivileged populations. Under these programmes, the existing health system is being extended, in terms of manpower, materials and facilities, in the hope that this might be one means of improving the deplorable health condition prevailing among these groups.

In order to reach the underserved and underprivileged populations, the Ministry of Health and Family Welfare relaxed the norms for the establishment of primary health centres and sub-centres in tribal and hill areas (Government of India 1989). A primary health centre can be established in these areas to cover a population of 20,000 as against 30,000 in other areas. Similarly, a sub-centre can be set up for a population of 3,000 in tribal/hill areas as against 5,000 in other areas. Further, where a particular tribal or hill hamlet or village is 5 km or more from the nearest health delivery point, a separate sub-centre may be set up for such hamlets.

One out of every four PHCs can be upgraded to a community health centre with thirty beds and with the facilities to deal with four specialised areas: gynaecology, paediatrics, surgery and medicine. A village health guide is provided for a population of 1,000. In villages with a population above 1,500, the community has to select two or more village health guides. A specific provision is made for research into diseases to which Scheduled Tribes are particularly prone.

To control endemic goitre in the hill and other regions of the country, a National Goitre Control Programme (NGCP) was launched by the government towards the end of the Second Five-Year Plan in 1962. Regional centres have been set up by the Indian Council of Medical Research (ICMR) at Jabalpur, Bhubaneswar and Port



I can't understand these people. Not a soul here knows how to read or write and yet they want a school.

Blair to study the health problems of tribal populations. The Integrated Child Development Services (ICDS) programme provides an important source of supplementary nutrition, immunisation, health check-up and referral services for children in the age group 0 to 6 years and pregnant and nursing mothers. The services are sanctioned on a block basis

and priority is given to tribal blocks. Further, in tribal areas, an *anganwadi* can be set up for a population of 700 as against 1,000 in other areas. A number of maternal and child health schemes have also been initiated to provide maternal and child health care and to reduce mortality and morbidity among this vulnerable group.

Role of Non-Governmental Organisations (NGOs) and Nature of their Involvement

The National Health Policy of the Government of India emphasised the role of voluntary organisations and non-governmental organisations (NGOs) in two vital areas of the Health and Family Welfare Programme, i.e., primary health care and population stabilisation (Government of India 1985). The policy recognises that these two programmes must be based on voluntary acceptance by the people, and provides for the encouragement and involvement of voluntary organisations in the field of health and family welfare.

This emphasis on voluntary organisations in the National Health Policy recognises the remarkable work done by several groups in the area of health. Some examples may be cited:

1. 'Action for Welfare and Awakening in the Rural Environment', popularly known as AWARE, is a voluntary organisation set up in 1975 with the objective of the all-round development and upliftment of the weaker sections of society, especially tribal and backward groups (NIHFW 1988). Besides Khammam district, AWARE has been working in nine other districts in Andhra Pradesh and in some pockets of Orissa, Karnataka and Tamil Nadu for the past

decade. A project entitled, 'Floating Health Centres for Inaccessible Tribal People, district Khammam (AP)', was initiated in 1984 and assisted by USAID for four years. The project covered a population of 38,000, mostly poor and backward tribal groups like the Koyas and Kondareddies. The project was spread over eighty villages located on both sides of the river Godavari in inaccessible hills and deep jungles. The only way to reach these villages was by motor boat. The Floating Health Centre was thus created on a motor boat and a Health Shelter was established at each of the ten halts of the Floating Health Centre, five on each side of the river. The main objective of the project was to augment the availability of primary health care to inaccessible tribal populations in the area with special emphasis on health education and prevention and control of communicable diseases

2. 'Streehitkarini' (NIHFW 1986) is a registered women's organisation which was established in 1964 with the broad objective of enabling women in the urban slum areas (Dadar-Prabhadevi) of Bombay city to lead a healthy life. The activities of the organisation include preventive, promotive and curative health, and medical services consisting of family welfare, nutrition, and maternal and child health care. Adult education classes and vocational classes in sewing, hosiery, screen printing, etc., are also held in order to enable women to take on income-generating work

Streehitkarini carried out a project on 'Community Involvement through Comprehensive Health Care and Education' with financial assistance from USAID. Under the project, some service delivery units were established with a view to carry out activities relating to health, education and income generation.

Utilisation of Health Care Services

Despite the National Health Policy and the revised 20-Point Programme of the Government of India which aim to provide special programmes for improving the health status and quality of life of underprivileged populations like the Scheduled Tribes and Scheduled Castes, the utilisation of health services is reported to be very poor. There is no significant change in the important indices of health like infant mortality, maternal mortality and incidence of communicable diseases. This situation calls for a very close and detailed analysis of the influence of special socio-cultural and economic conditions on the health behaviour of these groups. Such an analysis is also necessary to ascertain the modifications and

improvements required in the existing allopathic health delivery system so as to make it more appropriate for the underprivileged sections of our population.

Health Care Strategies

Underprivileged groups in India have specific problems, some of which might be in-built while some others may be imposed upon them, which jeopardise their overall development and progress. Therefore, the health care delivery system should be so designed as to take each specific group into account, catering to specific needs and problems by encouraging personal involvement.

Collaboration with voluntary and non-governmental organisations should be sought to integrate their activities and services with the government's health development plan for the tribal populations.

In brief, the following strategies, if actively pursued could go a long way towards improving the health and overall development of the underprivileged populations:

- Formulation of realistic developmental plans based on the needs of specific groups
- Adequate understanding of the socio-cultural background of different groups, perception of diseases, their beliefs and taboos, and a study of the health culture at the micro level. Positive values and traditional skills should be encouraged and inducted into the mainstream
- Most tribal communities have a wealth of folklore related to health. Documentation of this folklore available in different socio-cultural systems could provide the model for appropriate health and sanitary practices in a given ecosystem
- Identification of indigenous herbs for medicinal use and their preservation and documentation
- Development of ethnobotanical and ethnozoological museums at the divisional headquarters; collection, preservation and display
- Efforts should be made towards developing proper sanitation facilities, personal hygiene, and provision of safe drinking water. Efforts should also be made to dispel certain *negative* beliefs, taboos, and magico-religious practices, while retaining the positive beliefs.
- Development of horticulture with emphasis on local fruits. Healthy nutrition should be encouraged through local produce and local recipes
- Development of poultry and fisheries
- Health education should be imparted by the local people (preferably women) with guidelines provided by health functionaries
- Local community leaders, clan chiefs and prominent caste leaders must be involved in the decision-making process, in which women must also be included
- Appropriate benefits from the government must reach the people in time, and government and non-government staff should be readily available to understand and address the villagers' problems with patience
- The concept of cooperatives and effective marketing should be introduced in order to generate a competitive economy



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Family Welfare

Preamble

In July 1988, India's population crossed the 800 million mark. On average, India added 7 million people each year during the decade 1951-1961, 10 million during 1961-1971, 13 million during 1971-1981, and 16 million during 1981-1991. Today, India's population stands at 843 million. If a growth rate such as this is allowed to continue, India is likely to cross the one billion mark by the year 2000.

Population increase at this rate, coupled with a shrinking land area and natural resources can only lead to devastation. While India accounts for only 2.4 per cent of the world's land area, 16 per cent of the world's population is Indian. During the 1960s, one out of every seven persons was an Indian, now one in every six. In the 1960s, India added the population of Australia to its own every year. It adds more than that today.

The impact of such a high rate of population growth is perhaps unimaginable. Even by the turn of the century, India will have more than half a billion uneducated people with mounting problems of unemployment, lack of shelter, poverty, malnourishment, and perhaps, finally, a revolt against the existing system. Anticipating the impending population increase, the Government of India took certain steps after Independence to curb population growth. Along with socio-economic develop-

ment plans, population control was also taken up in the name of family planning. How far has this programme been successful? What were the drawbacks and what are the solutions, if any? These questions, along with historical facts and an analysis of the plans and policies governing family welfare, form the core of this paper. Census enumeration in India began in 1881 and has since taken place every 10 years. Table 1 presents some broad population trends in India since the beginning of this century (1901-1991).

Table 1

Year	Population	Annual growth rate	Decadal rate per 1,000 population	
			Birth	Death
1901	238.3	—	—	—
1911	252.0	+0.68	49.2	42.6
1921	251.3	-0.31	48.11	47.2
1931	278.9	+1.01	46.4	36.3
1941	318.6	+1.40	45.2	31.2
1951	361.0	+1.25	39.9	27.4
1961	439.2	+1.89	41.7	22.8
1971	548.1	+2.22	41.2	19.0
1981	683.8	+2.22	37.2	15.0
1991*	843.9	+2.21	—	—

Source: Registrar General of India.

* : Provisional.

The growth in population was slow during the earlier decades of this century. Between 1901 and 1921, a mere 12.9 million people were added due to a high mortality rate caused by epidemics, crop failure and famines. During the next three decades (1921 to 1951), the increase in population was 110 million, more than double that of the previous three decades (42 million)! It is for this reason that the year 1921 has come to be known as the Year of the Great Divide with regard to population trends during this century. This increase in population was due to a gradual decline in the death rate with no perceptible change in the birth rate. The observation of the Registrar General and Census Commissioner on the Census of 1951 is relevant here:

During the 30 years following 1921, our numbers have increased from roughly 25 crores to 36 crores. When we pause and think of these figures and their implications, the first reaction is one of wonder whether they could really be true or whether something is wrong with the figures. . . . It seems so difficult to believe that 1921-1951 could be so very different after all from 1891-1920 (*Report of the Registrar General of India*, vol. 1, 1953, p. 123).

Population increase during the period 1951 to 1981 was even higher (324 million), as the death rate continued to decline sharply. Today, India's population is more than double that during Independence, and unless checked will cross the one billion mark even before the turn of the century.

Despite the fact that the rate of population growth during the period 1901-1911 was insignificant, that there was a negative trend during the next decade, and that the rate of growth was not alarming during the next two decades, farsighted social reformers, intellectuals, econo-

mists and politicians expressed concern and cautioned against the likely problems of population growth in future.

One of the most significant events took place in 1940 when the National Planning Committee set up by the Indian National Congress with Jawaharlal Nehru as Chairman recommended that:

In the interest of social economy, family happiness and national planning, family planning and limitation of children are essential and the state should adopt a policy to encourage this. It is desirable to lay stress on self-control as well as the spread of knowledge of cheap and safe methods of self-control.

Individual and organisational efforts in this direction are summarised in the following sections.

In ancient India, people preferred large families due to certain social and religious obligations as well as due to the high infant and child mortality rates prevailing at the time. But even ancient religious leaders advised small families. The *Rigveda* says, 'A man with many children succumbs to miseries', which, Bhagwan Dash (1975) writes, 'is probably the oldest statement suggesting against a large family'. He also noted that although the ancient texts make no mention of artificial infertility and contraception, there is an indirect reference to the spacing of children: 'a child born before the sixth year of birth of the previous child is considered to have a short span of life.'

Dr S. Chandrashekhar (1985), former Union Minister of Health and Family Planning also acknowledged that:

The authors of the *Upanishads* apparently gave some serious thought to the question of contraception and its control. Remarkably enough both were considered

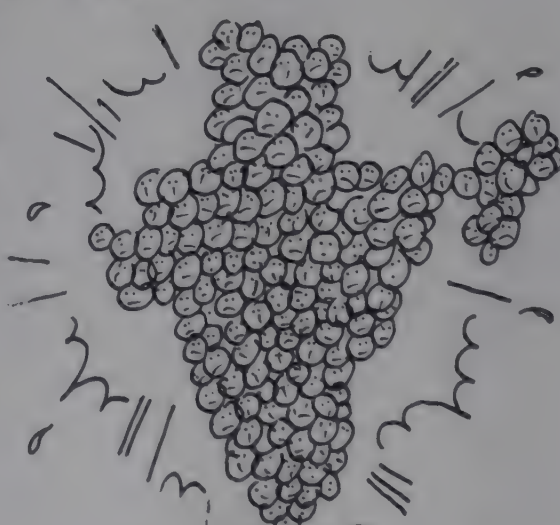
THE FRIGHTFUL SCENARIO



PAST



PRESENT!



FUTURE!??

dharma, ethical and proper for a married Hindu for any valid reason. Although serious clinical efforts at scientific contraception are hardly a century old, the concept of birth control is as old as [the] *Upanishads* and actually as old even as the earliest Egyptian civilisation.

At the beginning of this century, Dr Pyare Krishan Wattal wrote (1916):

While the means of subsistence tend to increase in an arithmetical progression, population, if unchecked, would multiply in a geometrical progression... population must be limited to the means of subsistence.

He also observed that 'our high birth rate is a social danger. . . and if we want to go to the root of the evil, we must look to the causes that give rise to the high birth rate much more seriously than to the other set of secondary causes that give rise to the high death rate.' He was equally concerned about the impact of a high birth rate on the health of mothers and children, and was, even then, confident that with the correct perspective the birth rate could be drastically reduced.

Raghunath Dhoudo Karve, a mathematician of repute in the 1920s, was equally concerned that women should be helped to recoup their health after childbirth and before the next pregnancy, which he considered the right of every woman. Against all odds, he started a birth control clinic and contraceptive centre with the help of his wife in Girgaum in Bombay in 1921.

Following Professor Karve, a number of individuals and organisations took the initiative to propagate the need for birth control:

- In 1922, the Indian Birth Control Society was formed in Delhi by Gopalji Ahluwalia
- In 1923, a Birth Control League was started in Bombay by N.S. Phadke
- In 1929, Dr A.P. Pillay founded the Wives Clinic in Sholapur

Despite these concerted efforts by enlightened people to propagate the birth control movement, the British government did nothing during those years. It was only the government of Mysore that issued an order to open birth control clinics at Mysore and Bangalore in 1930, which became the first government-run family planning clinics in the world. In 1932, the Senate of Madras University accepted a proposal to give instruction in contraception, and in 1935 the Women's Welfare Society began conducting a weekly birth control clinic in Duffryn Hospital. The All India Women's Conference passed a resolution favouring birth control at its Lucknow, Calcutta and Trivandrum sessions. Mahatma Gandhi, too, as is well known, agreed with the concept of birth



control, not so much through contraceptives as through self-control and abstinence. In 1939, the President of the Indian Congress, Shri Subhas Chandra Bose, said at the Tripura Congress: 'With regard to the long programme of a free India, the first problem to tackle is that of our increasing population. . . . I would urge that public attention be drawn to this question.'

On the eve of Independence, the Health and Development Committee, popularly known as the Bhore Committee (1943-1946), expressed concern about the steady growth of population:

This has had its repercussions on all such matters as the housing, clothing and feeding of the additional numbers brought into existence from year to year, their education and the provision of adequate measures for the protection of their health. No programme of social reconstruction can therefore afford to ignore the implications of the population problem.

The Committee recommended the following measures to ensure a decline in the rate of population growth:

- Raising the age at marriage for girls
- Improvement in the standard of living
- Internal limitation of families

The Committee further recommended that 'on economic grounds... contraception is justified in the interest of the individual and of the community and that the state should provide facilities for imparting knowledge regarding birth control, when desired for such reasons. . . .

Thereafter, the Family Planning Committee was established in 1949, later renamed the Family Planning Association of India (FPAI), with Lady Dhanavanthi Rama Rao as its first Chairperson and other medical practitioners and social workers as members. With this beginning, the organisation has spread all over the country and is doing valuable work.

After Independence, India was confronted with widespread poverty, a disease-stricken population, millions of illiterate people, lack of resources and several other problems. But the country had no dearth of talented personalities who took up the challenge in order to improve the quality of life of the millions. However, four valuable years were lost before the five-year socio-economic development plans were initiated.

First Five-Year Plan (1951-1956)

The Government of India appointed a Planning Commission in March 1950, with Prime Minister Pandit Jawaharlal Nehru as Chairman, to fulfil these constitutional obligations.

A number of advisory panels with official and non-official experts were appointed to help the Commission determine the priority areas for development. One such panel was appointed for health and another for social welfare. The health panel appointed a sub-committee on population growth and family planning on 11 April 1950, visualising the impending population increase.

This Committee submitted its report on 14 April 1951:

- It recognised the need for family planning
- It delineated specific government measures in relation to family limitation, e.g., facilities for sterilisation, advice on the use of contraceptives
- It recommended improvements in population data and systematic studies of the population problem

Despite these developments, however, family planning could not easily be included under health programmes as Rajkumari Amrit Kaur, the then Health Minister and Chairperson of the health panel, was opposed to it. After a great deal of debate, and with the efforts of Pandit Nehru, family planning was included in the planned programme, but as Rajkumari Amrit Kaur had her reservations about the use of contraceptives, the programme initially began with the rhythm method.

The Government of India allocated Rs 65 lakhs during the First Plan (1951-1956) for the family planning programme under the Ministry of Health, keeping in view the recommendations of the Family Planning Research and Programme Committee. 'This provision was determined not so much by financial considerations, as by an appreciation of the nature of the task to be attempted and the time needed for adequate preparation' (Government of India 1957a).

The primary objectives during the First Five-Year Plan were:

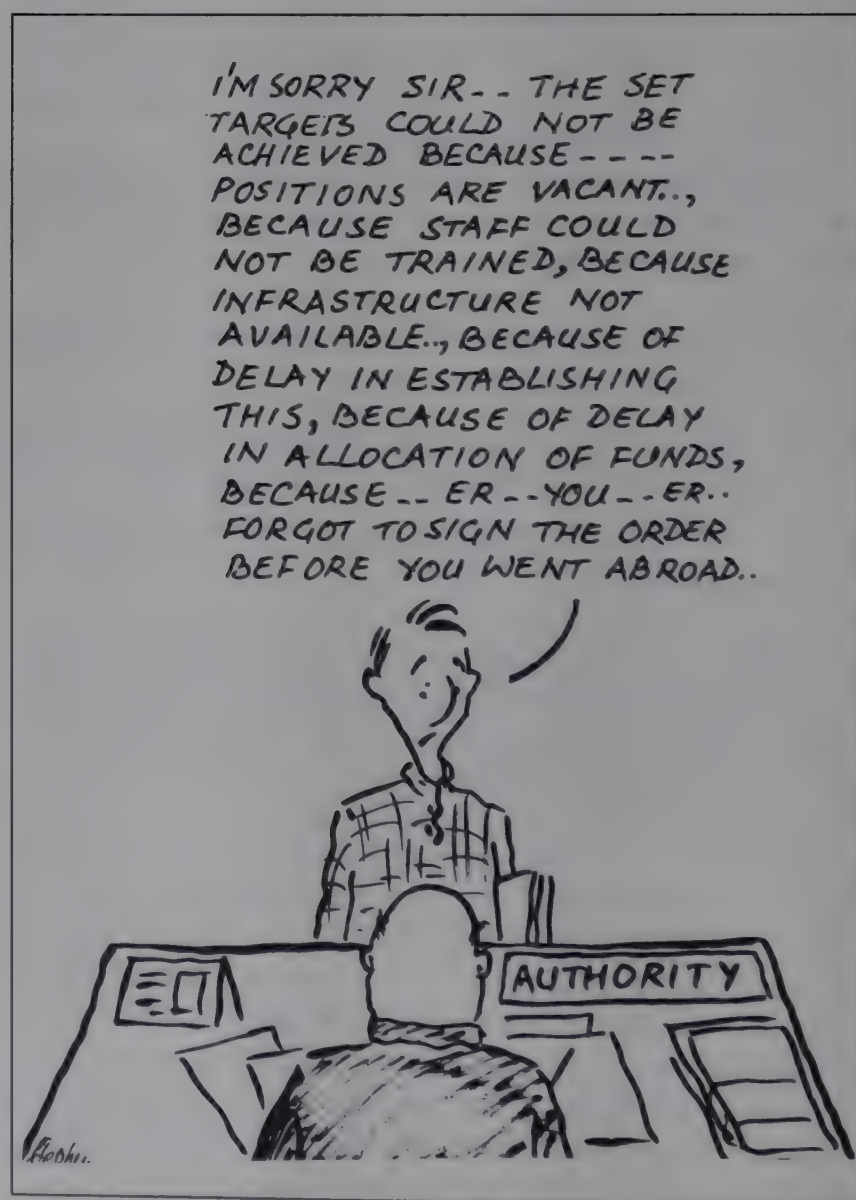
- To obtain an accurate picture of the factors which contribute to the rapid increase of population
- To gain further understanding of human fertility and the means of regulating it
- To devise speedy ways of educating the public
- To make family planning advice and services an integral part of the services in hospitals and health centres

The approach was to be 'clinic'-based, and the advice, services and supplies were to be provided through existing clinics. The method advocated during this period, as mentioned, was primarily the rhythm method, with some emphasis on the available conventional contraceptives.

During this period, the family planning programme was directed primarily at building up active public opinion in favour of the programme and the promotion of family planning advice and services on the basis of existing knowledge. In addition, demographic and biomedical studies were also taken up.

One hundred and forty-seven family planning centres were established under various agencies: the state governments (86), local bodies (27) and voluntary organisations (34).

Of these, 126 were in urban areas and 21 in rural areas. Despite the fact that only Rs 65 lakhs were allocated for the Plan period, only Rs 14.50 lakhs (22.3 per cent) was spent on family planning activities. This discrepancy in amount allocated and spent is visible during the other plan periods as well. There are several reasons for this, the two salient among them being: delay in the allocation of funds, and delay in establishing the necessary infrastructure as a result of which staff cannot be trained and positions filled.



Second Five-Year Plan (1956-1961)

The Second Five-Year Plan recognised that the rate of economic development would depend upon:

- The rate of growth of the population
- The proportion of current income of the community devoted to capital formation
- The return by way of additional output on the investment thus undertaken

The Planning Commission was aware of the possible constraints on the impact of family planning during this period and was apprehensive of future economic growth:

Over a period, the outcome of developmental efforts can be noticeably different if population trends are altered in the right direction. . . in countries like India, a high rate of population growth is bound to affect adversely the rate of economic and living standards per capita. . . the conclusion is inescapable that an effective curb on population growth is an important condition for rapid improvement in incomes and in levels of living...improvement in public health and in the control of diseases and epidemics is to bring about an almost immediate increase in [the] survival rate. While there may be a difference as to the likely rates of population growth over the next 20 to 25 years, indications clearly are that even with the utmost effort...to bring down birth rates, population pressure is likely to become more acute in the coming years. This highlights the need for a large and active programme aimed at restraining population growth even as it reinforces the case for a massive developmental effort.

With this in mind the Government of India delineated the following measures:

- To develop services, and the research and training programmes initiated during the First Plan period
- To establish the number of service clinics
- Introduce sterilisation services, free of cost, for both men and women
- To offer 100 per cent central assistance to the state governments to provide sterilisation facilities for the benefit of people in all parts of the country

The funds allocated for family planning during this period were Rs 497 lakhs, of which Rs 215.60 (43.4 per cent) were spent. By the end of December 1961, 1,406 rural and 721 urban clinics had been established, and

1,34,845 males and 1,22,417 females had accepted sterilisation. It was also estimated that 4,15,209 persons were using conventional contraceptives during this phase.

The adoption of contraceptive methods is governed by changes in social behaviour and attitudes, which cannot be achieved overnight. This naturally results in a slow decline in the birth rate with a consequent increase in population growth, as was revealed by the 1961 Census. As Ashish Bose (1988) observed:

The Planning Commission blundered by assuming a growth rate of 1.25 per cent per year (on the basis of the observed growth rate for the 1941-1951 decade) for the next three decades, and set out the goal of doubling the per capita income by 1977. The Planning Commission's calculations were shattered by the 1961 Census which revealed a population growth rate of 2.2 per cent for the 1951-1961 decade. With this the hope of doubling the per capita income by 1977 vanished.

Third Five-Year Plan (1961-1966)

The approach to the Third Five-Year Plan stressed such social measures as education, particularly for women, employment, rural water supply and the expansion of family planning programmes. In view of the sharp increase in the population growth rate, as revealed by the Census of 1961, family welfare programmes were given high priority:

The greatest stress has to be placed in the Third and subsequent Five-Year Plans on the programme of family planning. This will involve intensive education, provision of facilities and advice on the largest scale possible and widespread popular effort in every rural and urban community. In the circumstances, family planning has to be undertaken not merely as a major development programme, but as a nation-wide movement which embodies a basic attitude toward a better life for the individual, the family and the community.

Although the end of the Second Five-Year Plan had seen the emergence of reasonably good clinical service facilities, it was observed that the people were reluctant to accept these services. It was for this reason that education was given emphasis during the Third Plan, with the understanding that an educated and enlightened population would better understand the advantages of a small family.

In 1962, the government set the target of reducing the birth rate to 25 per 1,000 population by 1972. To fulfil this objective, the strategy was revised from a 'clinic-based' to the 'extension approach' which included

educating the people and providing knowledge and information about various aspects of family planning. This was to be achieved by family planning workers visiting people at their homes.

Several other measures were also adopted during this Plan period:

- Various conventional contraceptives were made available to the people free of cost in both rural and urban areas through hospitals, clinics, primary health centres, family planning centres, etc.
- To maintain the voluntary nature of the family planning programme, the choice of contraceptive method was left to the acceptors in what is popularly called the 'cafeteria approach'
- The intrauterine contraceptive device (IUD), commonly known as the 'loop' insertion, was introduced in the programme as a measure of birth control during the last year of the Third Plan

To provide these services the infrastructure of the health and family welfare services was considerably expanded. Of the Rs 2,697.60 lakhs allocated, the major portion was spent on the infrastructure.

Interplan Period (1966-1969)

At the end of the Third Plan, India's economy was floundering and plans were formulated on a year-to-year basis. The policy continued to be the same but in view of rapid population growth, the financial allocation was increased in the hope of reducing the growth rate.

Certain other vital decisions were taken during this period:

- It was once again reiterated in 1966 that the birth rate was to be brought down to 25 per 1,000 population over the following 10 years
- In view of the importance of the family planning programme it was decided that the states would be given 100 per cent central assistance for all non-recurring and recurring expenditure on training, education, publicity, conventional contraceptives, sterilisation, IUD services, etc. The states were also assured that such assistance would be provided for a period of 10 years beginning 1966-67
- Grants to voluntary organisations were liberalised and the state governments were authorised to review and sanction grants up to Rs 50,000. This was further liberalised and the states were empowered to sanction new or continued grants exceeding Rs 50,000 after obtaining administrative approval from the central government
- The sterilisation and IUD programmes were made

target-oriented and time-bound

- The system of giving monetary compensation to the sterilisation and IUD acceptors was introduced
- To give the family planning programme proper direction it was decided to create a new Family Planning Department under the Ministry of Health and Family Planning

By the end of March 1969, there were 5,076 rural family welfare planning centres, 19,102 rural MCH centres and sub-centres, and 1,800 urban family welfare planning centres.

From the mid-1960s, the government involved such sectors as defence, railways, labour, and post and telegraphs to extend family planning services. Later, the public and private sectors were also encouraged to extend financial assistance to the programme. A fair number of voluntary organisations were also involved in the field of family planning.

The central and state governments had begun to



appreciate and recognise the work of these voluntary organisations quite early on and began to provide financial assistance from the First Five-Year Plan itself. During this period, 34 family welfare planning centres were established in the country by various voluntary organisations. Gradually, the number of such centres increased and at the end of 1984 there were 322 such centres functioning all over the country. Today, over 300 voluntary organisations are engaged in work in this area.

The Family Planning Association of India (FPAI) is perhaps the oldest voluntary organisation engaged in family planning work. With 41 branches all over the country, local communities are educated and motivated through youth clubs and *mahila mandals*. For this, the FPAI has 21 rural integrated projects covering a population of 27,75,507. A total of 56,185 voluntary workers (as on April 1985) serve a variety of functions at the following centres:

- Fifty-four urban family welfare centres modelled along the pattern of the government in the densely

populated urban areas of various cities

- Thirty-four mobile education-cum-service units through which door-to-door facilities for family planning and maternal and child health education and services are provided in urban and rural areas
- Sixty-six outlets which cater to the health needs of mothers, infants and children
- Twenty-one comprehensive family planning clinics and 21 mini-centres which provide a full range of terminal and non-terminal methods of birth control. These include MTP, menstrual regulation services, maternal and child health programmes and infertility counselling
- Twenty-five centres which provide assistance to childless couples
- Since 1979, a Community Based Distribution (CBD) Project, run in collaboration with the Department of Preventive and Social Medicine of Banaras Hindu University, has covered a population of 1.25 million in 1,242 villages in Uttar Pradesh. Over 1,360 trained local volunteers educate and motivate couples, supply condoms and oral contraceptives, refer couples to other methods, and follow up cases. Another CBD project started in mid-1984 in collaboration with the Gandhigram Institute has trained 245 village volunteers to inform and motivate couples and supply contraceptives in 185 villages in Madurai district in Tamil Nadu

There is enough scope for private organisations as well to promote family welfare, at least amongst their employees. While a number of such organisations are doing commendable work in this field, the efforts of the Tata group of industries deserves mention.

The Tata group started family planning programmes in their steel manufacturing unit at Jamshedpur as far back as 1952. Shri J.R.D. Tata's commitment to the cause of family welfare is well known. From time to time he mobilises influential people in society in favour of family welfare policies. His latest effort was to conduct the symposium by the Family Planning Foundation in July 1990, 'Search for New Approaches in the Nineties'. Demographers, planners, administrators, social scientists and representatives from NGOs all over the country were involved in the debate. It was suggested that 'education should get top priority in India as that alone would enable the people to take decisions for themselves in a rational manner', and that the government should treat the decade of the 1990s as a critical period during which substantial efforts should be made for the success of the family planning programme.

In 1977, an Association of Parliamentarians for Population and Development was formed, involving various political parties as the people's representatives





to lend support to the family welfare programme. They resolved to make the family planning programme a people's programme, involving its grassroot-level workers. At its first National Conference in May 1981, it recognised family planning as a basic human right which is vital to development and as an instrument for social change. It pledged total political commitment to the programme and resolved to keep it out of the realm of political controversy.

However, a decade has passed since its first conference with no results. According to Banerji (1989):

It was resolved that all elected representatives, from panchayats upwards, would give a concrete demonstration of their determination to seek vigorous and speedy implementation of the programme in the very next session of their respective bodies. They would also undertake house-to-house education, contact at least 1,000 families each year, and set up constituency level committees and promote general community involvement. One does not have to undertake elaborate research to come to the conclusion that not even one per cent of all that had been resolved more than seven years ago, by those who claim to represent the people of the country, has been translated into reality.

Laudable policies, yes, but useless if they remain on paper alone. If this is the degree of commitment of the people's representatives, what hope do we have of achieving the goals we set?

Performance

The performance of the family planning measures adopted picked up considerably during the Third and Interplan periods:

- From January 1962 to March 1966, 10,04,758 males and 2,63,823 females accepted sterilisation, five times the number of acceptors during the Second Plan period (up to December 1961)
- Between 1966 and 1969, the number of sterilisation acceptors increased significantly: 38,16,563 males and 5,75,413 females

However, this increase was found to be primarily the result of the introduction of cash incentive schemes: thus, although performance improved in terms of quantity, in terms of quality it was far from successful. This is evident from the Census report of 1971 which showed that the decadal birth rate did not come down significantly (from 41.7 in the 1961 Census to 41.2). And this, despite the tremendous increase in inputs in terms of finance and other infrastructure. While IUD acceptors increased significantly during 1966-67, the number dropped sharply during 1968-69, primarily due to incorrect selection of cases and improper follow-up of earlier acceptors.

Need for Evaluation

By the end of the 1960s the family planning programme along with its infrastructure had expanded considerably and sufficient funds were being directed towards the programme. It came to be recognised that an evaluation of the various components of the programme on a regular and periodic basis was essential.

Various agencies began evaluating the programme from the 1960s. In 1963-64, the Programme Evaluation Organisation (PEO) of the Planning Commission came up with the following findings and recommendations:

- Lack of sufficient priority to the family planning programme hindered the development and implementation of the programme in the states
- States should be assured of central assistance for a period of 10 years, irrespective of the plan period
- An outline for a scheme to strengthen the staff of the central family planning organisation was suggested
- Decentralisation of powers to the states was recommended, particularly with respect to the sanction of grants to voluntary organisations and local bodies
- Appointment of honorary family planning leaders and payment of honoraria were not favoured when

no such payment was envisaged for the panchayat and other leaders

- Because of the shortage of women medical officers for provision of IUD services, it was recommended that the women officers make regular visits to the block family planning centres
- The need for educational inputs at the time of IUD insertion or sterilisation was emphasised
- The need for popular national and local support of the small family by leaders was stressed

The first United Nations Mission reviewed the programme during 1965-66. Its recommendations were:

- Setting up of a Standing Committee of the Cabinet to keep the programme under constant review and ensure the concerted effort of all other ministries
- Strengthening and streamlining of the administrative structures at the central and state levels
- Decentralisation of power and decision-making and more flexibility of financial authority
- Exploitation of all potentialities of IUD, intensification of the sterilisation programme and expansion of domestic production of condoms with an improved system of distribution
- Vigorous involvement of private practitioners, voluntary organisations and village communities and panchayats
- Enlisting enthusiastic support from the states by decentralising administrative responsibilities held by the centre

Although some of these recommendations were implemented, performance did not improve significantly in the years that followed. In 1968, the Evaluation and Intelligence Cell was created in the Department of Family Planning to assess the progress of various aspects of the programme in the different states.

The Operation Research Group (ORG) conducted a country-wide survey during the year 1970-71. The findings revealed:

- About half the couples (48.7 per cent) expressed a desire for additional children. Among those who had three or more children, nearly one-fifth (18.9 per cent) desired additional children. Those who had reached the age of 45 years had, on average, six live births during their reproductive period
- The desire for a son among the husbands was marginally stronger than among wives. A son, they believed, would carry on the family line and provide support in old age
- There was a strong association between the educational attainments of the couples and their desire to adopt family planning methods

- It was observed that 40.7 per cent of husbands and wives disapproved of adopting birth control methods to delay or prevent pregnancies. This attitude was seen to change positively with an increase in the educational level of the wives
- Awareness about terminal methods was high but not so of non-terminal methods, especially the use of condoms
- Only 13.6 per cent of the couples were currently using one or more methods of birth control while 4.6 per cent had used some method in the past
- 35.6 per cent of urban couples were currently using or had used some method in the past as against 14.3 per cent of rural couples
- There were wide inter-state variations as well. Kerala was at the top with 31.6 per cent of 'ever users' while Madhya Pradesh, Assam, Bihar, Rajasthan and Uttar Pradesh were below the national average level
- Vigorous promotion of non-terminal methods, it was found, could lead to a substantial increase in the practice of family planning

Despite these clear revelations by the ORG, the Government of India failed to take suitable steps to improve educational levels and the literacy rate (which increased from 29.45 per cent in 1971 to a mere 36.17 per cent [43.56 per cent of estimated population aged 7 years and above] in 1981), particularly among women: female literacy in India increased from 18.69 per cent in 1971 to 24.88 (29.75 per cent of estimated population aged 7 years and above) in 1981. Besides, incomes and quality of life of the people in general did not improve to the desired level (about 40 per cent of the population was still below the poverty line in 1981). As a result, the decadal birth rate did not come down below 41 per 1,000, as shown by the 1981 Census figures, despite the effort and expenditure.



Fourth Five-Year Plan (1969-1974)

According to the Registrar General's projections, which form the basis of the calculations, the total population would increase at the rate of around 25 per cent during the Fourth Five-Year Plan. This rate would fall thereafter, reaching 1.7 per cent a year by 1980-81. Implicit in these projections is the assumption that there will be a decrease in the birth rate from 39 per thousand population in 1968 to 26 in 1980-81 on the basis of active family planning programmes under way and a decline in the death rate from 14 to 9 per thousand population over the same period.

The current programme of family planning seeks to achieve a faster rate of reduction of birth rate than implied in the projection. Without a successful effort in this direction, it would be difficult to achieve the degree of acceleration in improvement of living standards implied in our projection for the period. Its significance for the more distant future is even greater!

Such was the government's concern and it attached the highest priority to curbing population growth during the Fourth Plan. To achieve this, married couples in the reproductive age were the target in order to:

- Bring about group acceptance of the small family norm
- Enhance knowledge about family planning methods
- Make supplies and services readily available

Once again, the Plan reiterated that the family planning programme would remain a centrally sponsored programme for the next 10 years and the entire expenditure would be met by the central government.



The Plan proposed to 'step up the target of sterilisation and IUD insertion and to widen the acceptance of oral and injectable contraceptives. The use of conventional contraceptives will also be stepped up', in order to achieve the goal of reducing the birth rate to 32 per 1,000 by 1973-74. The Plan also recognised that family planning could be 'more effective and acceptable if maternity and child health services are integrated with family planning. The scheme of immunisation of infants and preschool children with DPT, immunisation of expectant mothers against tetanus, prophylaxis against nutritional anaemia for mothers and children and nutritional programmes for the control of blindness caused by vitamin A deficiency among children will be implemented through family welfare planning centres.'

During this Plan, Rs 33,000 lakhs was the outlay while actual expenditure was Rs 28,443.30 lakhs. This itself was more than three times the total expenditure from the First Plan up to the end of the Interplan period (1952 to 1969). Several economists and researchers debated whether such high expenditure was justified. Seal and Bhatnagar in their study of the cost-effectiveness of the family planning programme (1963-64 to 1970-71) observed:

- (i) That sterilisation is the most cost-effective method, followed by IUD. Use of conventional contraceptives is, however, only half as cost-effective
- (ii) The benefit-cost ratio of all the methods is very high, ranging from 3:1 for users of conventional contraceptives to 18:1 for sterilisation acceptors, with an overall average of 16:1 for the programme as a whole (for the year 1970-71 using a discount rate of 110 per cent)
- (iii) This tends to suggest that all the family planning methods are paying rich dividends. There is a wide variation in the measures of cost-effectiveness and benefit-cost ratios among the states and the inter-state variation persists over the years

They concluded that since benefits were seen to be much greater than costs, despite uncertainty of data, investment in family planning would pay rich dividends.

Efforts were made to provide all the services envisaged in the policy through the vast network of existing health institutions at various levels. Although the maternal and child health component was made target-oriented during the period 1969-1974, the performance left a lot to be desired. Sterilisation acceptors increased gradually during the Fourth Plan, reaching a maximum of 3,12,856 during 1972-73, but the number

Box 1

FAMILY WELFARE—WHO DECIDES WHAT IS WELFARE?

India is the second largest country in the world, next only to China, in terms of population. Nearly 15 per cent of the total world population, 2.4 per cent of the world area and a population growth rate which is now second to none is a source of tremendous anxiety amongst the country's planners and decision-makers. They foresee ever-increasing numbers overshadowing the achievements that the country makes on the economic front.

Overpopulation is assumed without question to be the main cause of every problem, from the growth of slums to unemployment, famine, pollution, liberation wars and strikes. Futurologists take perverse delight in painting a hopelessly pessimistic picture of the world in the 21st century, especially in the Third World. Universal family planning is accepted by economists, planners and other experts, mostly in the developed countries from whom their Indian counterparts draw inspiration, to be the miracle cure of the problem of population explosion.

The protagonists of this line of thought argue that the small family norm is desirable because it enables people to live a prosperous life. By curbing the population, there would be goods in plenty to meet the material demands of the people. But this is not so, especially when viewed in the perspective of the economic status of the family. When the family lives a sub-human level of subsistence, having fewer children does not perceptibly elevate their standard of living. Hunger and starvation still have to be combated. More children mean an additional pair of hands which can contribute something to the family kitty. In any case, deficits and debts preclude the possibility of savings and subsequent elevation of lifestyles. And how many would survive the first five years of life is a moot question.

It is only when a family is assured a steady income that having more children becomes a liability. A small family norm is a middle-class value and to force the poor to submit to this without improving their economic and social conditions is unjust. It is ironical that a development process to ameliorate the lot of the teeming poverty-stricken millions is sought to be generated by merely reducing it. It deprives the individual, the future beneficiary, of the dignity and freedom to decide how many children he or she wishes to have. In a patriarchal social order, more than men it is the women who face the major brunt of this insensitive assault on human dignity. The methods, attitudes and subsequent after-effects further undermine their fertility and position in the socio-economic hierarchy.

Another aspect of the problem, hitherto undebated, is the psychological implications of a small family. Is the 'one child family' norm really desirable? Its effect on child development, social relationships and structures in the Indian situation have not been discussed in entirety. Though not yet overtly propagated, the mass media is now seeking to idealise the 'no child' family as a symbol of desirable economic values.

Release of resources through population control is possible

only when resources are universally available and uniformly distributed. The inequalities in access to even basic services such as health care become apparent through the fact that though 80 per cent of the Indian population is rural, less than half of the total health budget is allocated to this section. To make matters worse, public health personnel are so overburdened with family planning targets that primary health care becomes synonymous with birth control for the rural population.

The present socio-economic structure of society does not guarantee fair distribution of the released resources. The existing resources are concentrated in the hands of a few, a fact deliberately ignored by the major donor agencies. Very few are prepared to support developmental activities without population control being the frontal strategy of approach to solve problems of poverty and unemployment. For instance, maternal and child health (MCH) programmes find favour with the funding agencies because it is closely linked to fertility.

With the deterioration of India's economic condition, foreign aid has come to acquire a crucial role in shaping India's policies, and family planning is an indispensable part of the aid package. Population control is pleaded with such intense fervour that it cannot even wait for improvements in the economic and social fields. Population growth aggravates poverty, undernutrition and illiteracy; and these in turn create a situation which favours unregulated population growth. The quantitative and qualitative dimensions of the population problem which are mutually reinforcing must be addressed for family planning programmes to succeed.

The use of pressure tactics, the bureaucracy and panchayats at the village and *taluka* levels, as well as monetary incentives are accepted inducements to motivate people to accept family planning. If population control is seen independent of development, then motivation and incentives are perceived to be independent of the individual's social existence.

Family planning is much easier to implement than major advances in the areas of education or the economy. And, although it has been repeatedly stated that family planning is part of the package of development, it has been more a substitute for development and structural change. Decline in death rates in the Western countries was achieved not through aggressive and deliberate promotion of contraceptive technology or through national family planning programmes, but through changes in lifestyles and value systems brought about through socio-economic development.

There are no short-cuts and instant solutions which even the latest advances in contraceptive technology can offer. Family planning can only be meaningful as a by-product of overall prosperity; not when it is used as a means to chase a mirage.

dropped sharply in 1973-74. The increase was due mainly to higher cash incentives and the camp approach, which, aside from the actual performance of operations at camps, involved a comprehensive campaign to educate the people about the advantages of the operation and dispel any apprehensions. But once again, as shown by the 1971 Census, the birth rate (decadal birth rate was 14.2) could not be brought down as desired and population increase continued unabated.

Although performance figures might indicate that the family planning programme was successful, all was not well as brought out by Banerji (1977) in his report of a case study of 19 villages:

This study has shown that the family planning programme ended up in projecting an image which was just the opposite of what was actually intended. Instead of projecting an image which reflects respect

for the dignity of the individual—the so-called democratic approach which offers free choice of methods to the users—and which ensures better health services, the image of family planning workers in rural areas was that of persons who use coercion and other kinds of pressure tactics and offer bribes to entice people to accept vasectomy and tubectomy. There had been

Indian masses staying in primitive rural areas, depending on subsistence agriculture, will take to the modern idea of family planning and a small family norm, other things remaining the same? Is the small family norm not a part of the processes of modernisation and social change, a part of the transformation of a traditional society into a modern society? As long



numerous complaints from the villagers that they got no help from the family planning agencies when they encountered complications after the IUD, vasectomy or tubectomy. Failure to provide even a very rudimentary system of follow-up services and elementary medical care had tended to reinforce the negative image of the family planning agencies.

Regarding the propagation of the small family norm and the camp approach, Banerji wrote that the 'programme organisers had exhausted all possible ways of imposing a small family norm on the rural population. The latest approach of the times—the approach of mass vasectomy camps—involved the most intensive and large-scale application of coercive measures by the entire district administrative machinery, with the offer of monetary enticement to poverty-stricken, hungry people and a massive propaganda campaign.'

Ashish Bose (1988) was also critical about the manner in which the family planning programme was being implemented in the country. Describing the various measures and activities adopted by the government, he said:

But, in spite of all these [measures], the birth rate is not declining fast. Is this family planning inertia only a reflection of the general inertia in this country or is it that we are on the wrong track and can never reach our destination till we know what is the right track? . . . Is it logical to expect that the illiterate

as daughters are not viewed at par with sons, as long as the dowry system persists, as long as people are left at the mercy of their children for their maintenance in old age, how can the idea of a small family catch on?

Fifth Five-Year Plan (1974-1979)

Family planning was given the same priority during the Fifth Plan period. One important policy decision taken during this phase pertained to the manner in which the integrated family planning services would be provided, i.e., through multipurpose workers and the existing centres: 'The Fifth Plan approach will be to increasingly integrate family planning services with that for health, MCH and nutrition. Efforts will be made to convert more and more vertical programme workers into multipurpose workers who will pay special attention to family planning motivation and services.'

The approach during this Plan was different from earlier plans. First, it introduced the 'National Minimum Needs Programme' for the rural areas to ensure 'a minimum uniform availability of public health facilities, which would include preventive medicine, family planning, nutrition, and detection of early morbidity and adequate arrangements for referring serious cases to an appropriate higher echelon.'

Second, it was decided that the family planning programme would be carried forward in an integrated manner along with health, maternity and child health care and nutrition, as a strategy towards proper service delivery of family planning components. Third, the Plan emphasised a selective approach to family planning, concentrating efforts on eligible couples in the age group 25 to 35 years with two or more children, and newly-married couples.

It was in 1974 at the World Population Conference held in Bucharest that Dr Karan Singh, the then Minister of Health and Family Planning said what later became an oft-repeated slogan: 'Development is the best contraceptive'. In 1975, Prime Minister Indira Gandhi launched a special 20-Point Programme for intensive development in certain fields. While family planning was not included, the youth leader Sanjay Gandhi launched a 4-Point Programme at the same time in which family planning was the main component and which was pursued vigorously, perhaps too vigorously as many believed.

One of the major decisions taken during this Plan period was to link the amount of cash compensation paid to sterilisation acceptors with parity. But despite laudable policies and strategies geared to yield good results, the programme suffered a serious blow due to the over-enthusiastic implementation of the sterilisation programme by Sanjay Gandhi, often with the use of extra-constitutional means. While the number of sterilisation acceptors rose as never before during 1976-77 (Table 2), the voluntary nature of the programme came into question.

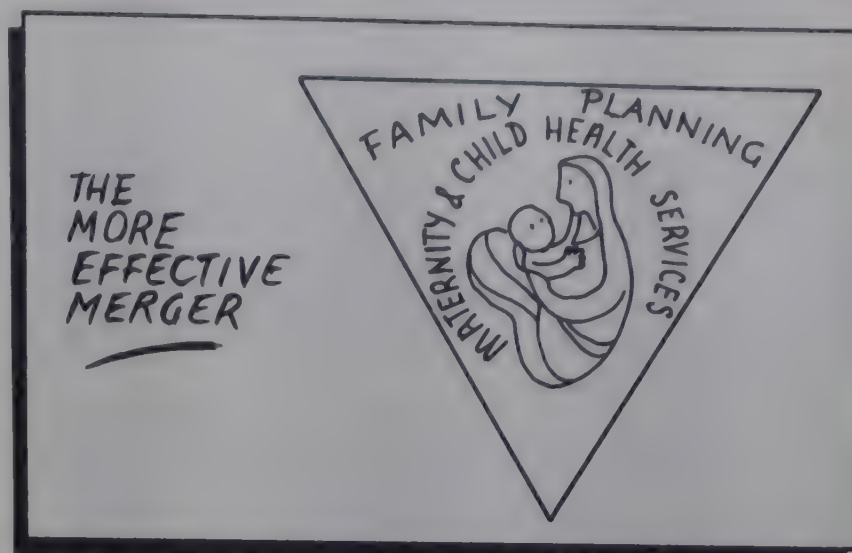
Table 2

Year	Targets	Number of sterilisations performed		
		Vasectomy	Tubectomy	Total
1974-75	2000000	611960	741899	1353859
1975-76	2491800	1438337	1230417	2668754
1976-77	4299000	6199158	2062015	8261173
1977-78	No targets	187609	761160	948769

The Emergency and the coercion that accompanied the sterilisation programme left deep wounds on the family planning programme as a whole for years to come. As studies revealed, even conventional contraception suffered badly.

In a follow-up study of the 19 villages which formed the basis of an earlier study, Banerji observed:

The objective of the National Population Policy was to build up a mass movement throughout the country in favour of the small family norm. [But] these objectives have not been achieved. In fact, at many places resort to force to impose sterilisation on people has precipitated quite the contrary condition—a mass movement against the family planning programme of the government. It has not been possible to generate



a movement even among the personnel of the executive machinery. . . a substantial proportion of the acceptors belonged to demographically dubious cases such as those with high parity, those with grown-up children and those with wives above the reproductive age. There were also cases where lure for money or the pressure for meeting targets led to sterilisation of the spouse of a previously sterilised individual, sometimes even repeat sterilisation of the same individual. Preoccupation of the entire government machinery with attainment of sterilisation targets has led to a neglect of the other components of the National Population Policy and indeed of the entire programme to improve the lot of the weaker sections of the population. By its association with this type of programme there has been a rapid erosion of the credibility of the community health services. This was dramatically reflected in the near hysterical response of mothers to immunisation programmes offered to school children by the health authorities.

Ashish Bose (1988) too spoke out strongly against the implementation of the family planning programme during the Emergency:

Sanjay Gandhi's 4-Point Programme not only had family planning as the first point but it became the only point which was ruthlessly implemented on a national scale. In Sanjay's vocabulary, family planning meant only one method—sterilisation. His only weapon in implementing the programme was the use of brutal force, unmatched by medieval barbarity. If our assumptions are correct, Sanjay Gandhi accounts for roughly 70 lakh forced sterilisations. The Sanjay Effect is a combination of coercion, cruelty, corruption and cooked figures.

The result was of course devastating for the government, which fell shortly after, and the already sore issue of family planning became an election issue with the change of government at the centre.

Interplan Period (1978-79 and 1979-80)

With a change in government, policies also changed. On assuming charge of the Ministry of Health and Family Planning, Shri Raj Narain changed its name to the Ministry of Health and Family Welfare. The family planning programme also came to be known as the family welfare programme.

This is not to say that there was no welfare component earlier. The Fourth and Fifth Five-Year Plans included various welfare components related to MCH programmes. The change in nomenclature was more to emphasise the decision to implement the welfare component and steer clear of coercion, force and disincentives.

One of the most important steps taken towards population control and reduction of maternal and infant mortality at this time was raising the minimum age at marriage for girls. The Child Marriage Restraint (Amendment) Act was passed by Parliament and came into effect from 1 October 1978.

During the period the Janata government was in power, the performance figures for the sterilisation programme were low with an adverse effect on the birth rate (Table 3).

Table 3

Year	Vasectomy	No of sterilisations; tubectomy	Total
1978-79	390922	1092985	1483907
1979-80	472687	1305237	1777924

There are several reasons for this. With the lifting of the Emergency and restoration of normalcy there was a slump in the family planning programme. The change in government policy also affected performance; the people's reaction to the programme after the excesses during the Emergency made government employees, particularly medical officers and paramedical staff, hesitant and afraid to pursue the programme, particularly after the Shah Commission of inquiry was appointed to look into and redress the excesses committed during that time. As Banoo Coyaji (1977) wrote:

As a result of the vocal campaign against atrocities, excesses and compulsions, government servants at all levels are completely demoralised and particularly so in the family planning department. . . . Whatever little work is being done is as a result of requests from the really needy women and is no credit to the motivational efforts which the well-trained staff and the family planning cadres at all levels are expected to put in. Consequently, whatever little work is being done is in the field of tubectomy only. The more desirable

and therefore more difficult aspect of the work, namely motivation of vasectomy, has come to an almost total halt. . . . The political leadership from the Lok Sabha down to the district and panchayat levels is fighting shy of the issue. With the coming elections in Maharashtra, Andhra, Karnataka and Assam nobody is prepared to open his mouth or to take one false step.

WOMEN AND THE FA

Knowledge and availability of birth control measures is a matter of women's rights if they are to be in control of their fertility. The government's aggressive incentive-based population control programme has not allowed this right to remain with women. In fact, forces that are alien, incomprehensible and beyond her control monitor her, both within and outside the family. In the existing context, birth control, abortions or even good maternal health care in the absence of a new thinking regarding a woman's role in society, merely replace an old set of traditions with new ones.

Powerful male-dominated institutions have in fact strengthened their hold over a woman's reproductive organs through birth control. Women hold no real power in the market-oriented production structure. Automation, unemployment or the omnipresent and omnipotent reproductive duties dominate women in the labour market, ultimately undermining her position in the social hierarchy and adversely affecting her access to basic necessities like food, health facilities, education and employment opportunities. The changing role of the family, her conjugal status, historical inevitability, market compulsions and often the prevailing political will determine the reproductive potential of the woman.

Male hegemony exists in medicine, in policy- and decision-making, and in research. Policy-makers decide whether a woman should have children, and if so, how many, and whether she should be allowed to abort her own foetus.

Doctors, social workers in clinics where abortion and contraception facilities are offered, and communication experts tend to adopt moralistic attitudes. Cultural biases in India naturally compel a woman more than her husband to accept family planning and poor as well as lower caste rural women have been targets of the camps for mass sterilisation as well as for Copper-T insertions. Tubectomies comprise more than 85 per cent of total sterilisations registered, although vasectomies are simpler and less risky.

Western feminists argue on the basis of their own experience that contraceptives do not necessarily improve the lot of women by giving them control over their bodies or choice with regard to childbearing. New forms of oppression are manipulated—at times with increased insensitivity.

Some proponents of population control have squarely blamed women for reproduction and have even hoped to



'The new government', wrote Ashish Bose (1988), 'announced that the family planning programme will do away with force and compulsion and wholly rely on persuasion and education. But apart from renaming "family planning" "family welfare", there was no change in the programme. Here lies the cause of the failure of the programme in recent months. Is it logical

WELFARE PROGRAMME

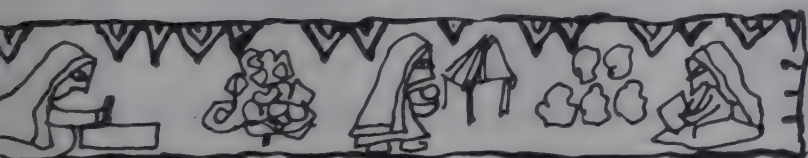
control the birth of girls through new reproduction technologies, such as sex determination, sex preselection, genetic engineering and surrogate motherhood. In the light of this victim-blaming, women, particularly the poor, become targets for any coercive, centrally planned population control programme. Incentives and disincentives are part of this strategy that is seen as independent of people's lives and social reality.

Many invasive and harmful contraceptives come as a package deal with population control programmes that select, motivate and, whenever necessary, coerce helpless targets. Ideally, contraception should be shared equally by the couple. The natural family planning methods which are the safest forms of contraception demand mutual cooperation and understanding. The man respects the woman's demand against conception and actively cooperates. In the absence of a pro-woman milieu, avoiding unwanted conceptions through contraception becomes the woman's second-last line of defence, the last of course being abortion.

The interests of multinational corporations, which seek and succeed in influencing a pronounced anti-woman government policy, controls, orientation and methods, can also be understood in the context of a vast untapped potential market. According to the 1981 Census, 43.4 per cent of all women belong to the reproductive age group and of these 80.48 per cent women are married. Thus, about 11.6 crore married women in the reproductive age group on the Indian subcontinent alone is a virtual goldmine.

At another level, Third World women are constantly used as guinea pigs to test dangerous contraceptives. The direct and indirect involvement of drug manufacturers in research related to long-acting hormonal contraceptives, the implicit bias underlying all these research studies and the limited options available to women has disturbing implications. Absence of long-term follow-up on the effects of such contraceptives renders not only women vulnerable but also her progeny.

In a mad rush to attain set targets, the kinds of contraceptives to be used, the right number of children to have, abortion, and many other intimate and personal decisions are made by international donors of aid on which the government thrives. The individual woman figures nowhere except as an unsuspecting target who has to be reached by fair or unfair means.



to expect the masses to take family planning seriously, particularly as they were told during the election just how wicked forced sterilisation was? The answer is "No". The family planning movement has lost its credibility at least in Uttar Pradesh, Bihar, Madhya Pradesh and Rajasthan. If we go on setting targets despite this and complain that they are not achieved, whose fault is it? Should we blame the masses or the bureaucrats? The answer is clear. Our masses know better. If they could oust a government, they can also tackle the family welfare officials under the present non-emergency set-up.'

Sixth Five-Year Plan (1980-1985)

With the fall of the Janata government, Indira Gandhi returned to power in January 1980. The Sixth Five-Year Plan was formulated, taking into consideration past failures and achievements and keeping in view the vision of the future. Some of the major policy objectives were:

- Progressive reduction in the incidence of poverty and unemployment
- Improvement in the quality of life of the people in general with special reference to the economically and socially handicapped populations
- Promotional policies to control the growth of population through voluntary acceptance of the small family norm

The 20-Point Programme was revised and the family welfare programme was included as a major component within it, stressing its implementation on a voluntary basis and portraying it as a people's movement. The Plan also included in its ambit vulnerable groups like women and children, Scheduled Castes and Tribes, landless labourers and marginal farmers, for whom special programmes were to be devised. Perhaps the most significant component was the Plan's recognition of the importance of health. 'An investment in health is an investment in man and on improving the quality of his life. It is, therefore, well recognised that health has to be viewed in totality, as a part of the strategy of human resources development.'

Reviewing the performance of the programme in the past, the Plan admitted that the non-attainment of birth rate targets was largely due to the government's inability to carry forward the programme with the active involvement of the people. As such, it reiterated the need to project the programme as a people's programme backed by support from governmental and non-governmental agencies. The government made it quite clear that the programme was to be continued on a voluntary basis through education, information and proper interpersonal communication. Accepting the recommendations

of the 'Working Group on Population Policy' appointed by the previous government in 1978, the Net Reproduction Rate (NRR) was to be reduced to 1 by 1996 for the country as a whole and by 2001 in all the states, from the existing level of 1.67. The Plan outlay was increased substantially during this period to Rs 1,010.00 crores. This was later increased and the amount spent during this period was Rs 1,424.29 crores.

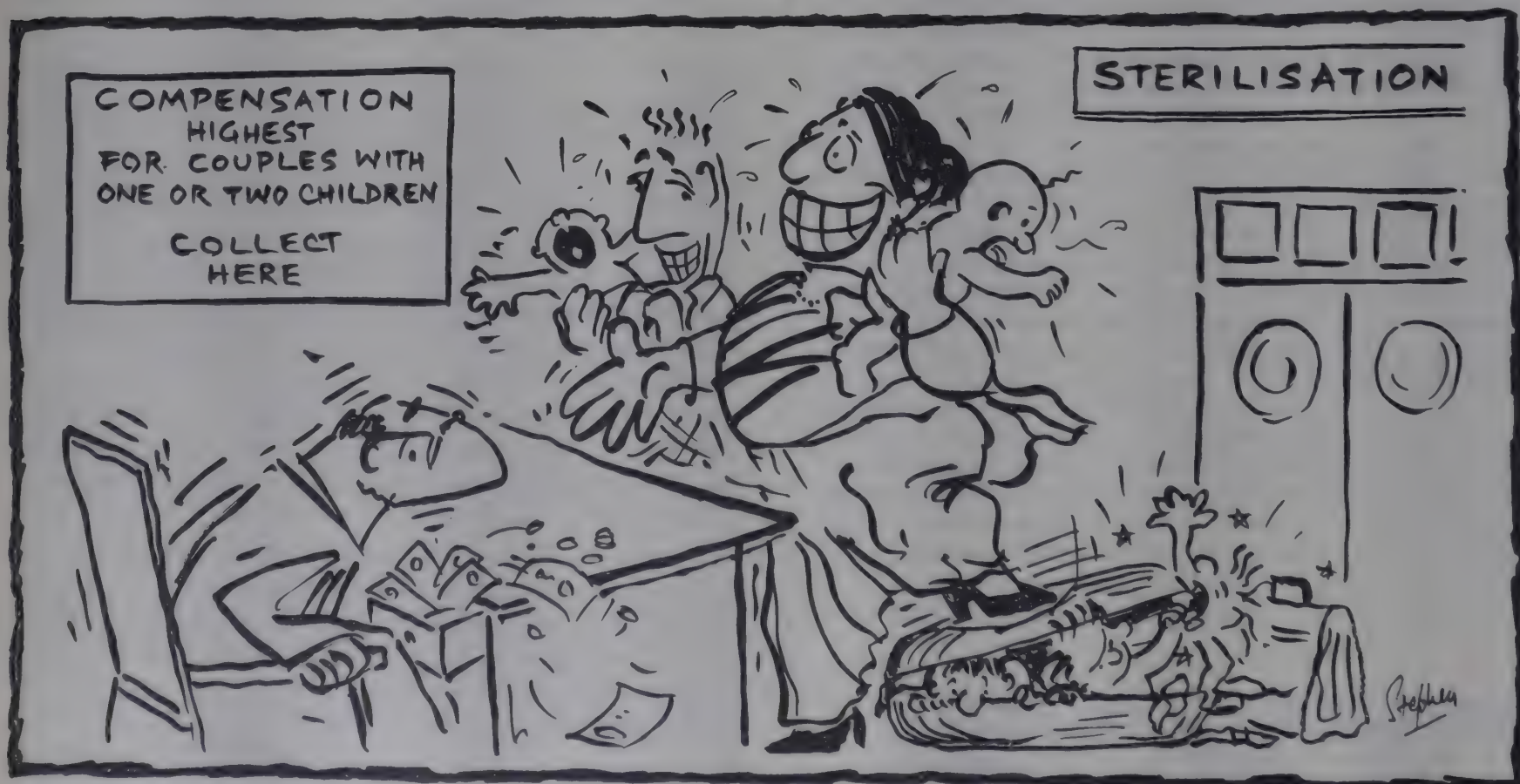
Incentives and Awards

Incentives in the form of cash to sterilisation acceptors was first introduced during the late 1960s. The amount fixed was Rs 10 and was intended to compensate the loss of wages incurred by the acceptor. Gradually, the amount increased, and payments began to be made to the motivators, doctors and other staff as well. Corruption, fake or engineered figures and coercion in an attempt to fulfil targets was the result. During the Emergency, compensation was linked with parity of the acceptors, i.e., the highest amount was offered to acceptors with one or two children only, the idea being to attract couples with one or two children to accept sterilisation. It was found, however, that even couples with four or more children claimed higher cash compensation, declaring that they had only two children. Such fraudulent practices were naturally in connivance with the so-called motivators and health and family planning staff, including the doctor and the administrators at many places.

earners in the unorganised sector or domestic labourers must be compensated. But this should not be extended to the regular employees of the government, the organised sector, and others who are protected by the benefits of the organised sector (spacial casual leave facilities, regular salary, etc.). Some organisations even offer their employees their own incentives—in the form of advance increment—to accept sterilisation. No compensation in the form of cash should then be made available to those who can avail of special casual leave facilities for the purpose. They are already better-off than a poor acceptor of the unorganised sector and this would only give them an added benefit at the cost of the poor.

Awards given to the best performing states/UTs under various categories is also a controversial system that was introduced during the Sixth Plan period. Huge sums of money (Rs 2.5 crores for the best performing state) are involved, leading to unhealthy and unethical competition amongst the various states. In Ashish Bose's (1988) words: 'This administrative innovation... was intended to generate healthy competition between states. According to our assessment, this innovation has failed. It has generated unhealthy competition between states and has led to large-scale manipulation of statistics on family planning performance in different states in India.'

Health and family planning workers at all levels often become so involved in identifying and motivating couples to accept sterilisation that persuasion sometimes gives way to coercion. The target-oriented nature of the programme compels them to manipulate statistics to suit



The issue of cash incentives has come in for a great deal of criticism. Cash incentive as compensation is an essential element in the programme as daily wage

their requirements, a phenomenon observed practically all over India. Medical officers, extension educators, health assistants and multipurpose workers, no doubt

under pressure from the higher echelons, are all to blame for racing to meet targets but failing to secure the people's participation.

As Ashish Bose (1988) rightly says:

Bureaucratic bulldozing does not make a programme a people's programme. On the contrary, it comes in the way of people's participation. . . the people are alienated by the family planning programme; they are angry with insensitive officials who are administering this programme; they are critical of unhelpful politicians who make speeches in the name of the people; the doctors feel humiliated at the treatment given to them by the higher bureaucracy, both medical and non-medical; the multipurpose workers feel harassed at the sterilisation quota allotted to them. But the number game in New Delhi goes on. . . targets are set and targets are achieved in rows of statistical figures presented in the government reports. How long will this number game go on? For whom will the target toll?

Nevertheless, during the Sixth Plan the performance of the various components of the family welfare programme improved slowly but steadily. It was indeed creditable that the government could carry forward the programme of sterilisation when it was still a sensitive issue. Table 4 shows how the performance figures for sterilisation improved gradually from 2.05 million in 1980-81 to 4.53 million in 1983-84.

The couple protection rate (CPR) also increased con-

Table 4

Year	Vasectomy	Tubectomy	Total
1980-81	438909	1613861	2052770
1981-82	573469	2218905	2792374
1982-83	585489	3397700	3983189
1983-84	661041	3871181	4532222
1984-85	549703	3534880	4084583

siderably, but the birth rate remained almost constant: around 33 per 1,000 population for eight long years. The crude birth rate (CBR) and couple protection rate from 1977 to 1986 are presented in Table 5.

Although the couple protection rate increased from 23.6 per cent in 1976-77 to 29.2 per cent in 1983-84, the crude birth rate fluctuated between 33 in 1976-77 and 33.9 in 1983-84. Thus, it remained virtually stagnant over a period of eight years. This is due to the fact that sterilisation remains the main method of contraception in India and is usually accepted after the age of 30, when the couple already has more than three living children in the majority of cases. Naturally, this situation caught the attention of demographers, economists, sociologists

Table 5

Year	CBR (%)	CPR (%)
1977	33.0*	23.6
1978	33.0*	22.5
1979	33.7	22.3
1980	33.7	22.2
1981	33.9	22.7
1982	33.8	34.7
1983	33.7	35.9
1984	33.9	29.2
1985	33.9	32.0
1986	32.4	34.9

*Excludes Bihar and West Bengal.

Note: Figures against 1977 refer to the financial year 1976-77, and so on.

and policy-makers. It has been calculated that the mean age of the wives of vasectomy acceptors increased from 34.8 years in 1977 to 37 years in 1985, and the mean age of tubectomy acceptors was between 33 and 34 years. In addition, the average number of living children per couple was more than three.

Somnath Roy (1987) further noted that 'about 75 per cent of the acceptors of vasectomy and 80 per cent of the acceptors of tubectomy had already three or more living children. Obviously, the desired demographic gain may not be expected from such contraceptive programmes.'

Table 6 shows that the couple protection rate increased from 10.4 per cent in 1970-71 to 39.9 in 1987-88. But the protection is mainly due to terminal methods, that too after the desired number of children are born.

From the Sixth Plan period, protection by non-terminal methods began to increase. In fact, it came to be realised that for any real impact on the birth rate, the thrust of the programme has to be directed towards encouraging the use of non-terminal methods.



Table 6

Year	(%) Couple protection rate due to			
	Sterilisation	IUD	CC & oral pills	All methods
1970-71	8.0	1.4	1.0	10.4
1973-74	12.2	1.0	1.5	14.7
1976-77	20.7	1.1	1.7	23.5
1980-81	20.1	1.0	1.7	22.8
1981-82	20.7	1.1	2.0	23.8
1982-83	22.0	1.4	2.5	25.9
1983-84	23.7	2.2	3.7	29.6
1984-85	24.9	2.9	4.4	32.2
1985-86	26.5	3.7	4.7	34.9
1986-87	27.9	4.5	5.0	37.5
1987-88	29.0	5.2	5.7	39.9

All couples with one child can be persuaded to accept the IUD as the choice of contraceptive. But even in 1987-88, only 5.2 per cent of eligible couples were effectively protected by IUD, one of the best contraceptive methods for spacing, which, even 15 years after its introduction, has not been popularised. In 1986-87, more than 43 per cent of the total acceptors of IUD already had three or more children and only 21.2 per cent had accepted the IUD after one child. How can we expect an impact on the birth rate with services of this quality? The target approach has to give way and the government, administrators, doctors and family planning workers will have to take effective steps to educate single-child couples of the advantages of IUD. Proper selection of cases, careful and aseptic methods of insertion, and proper and sympathetic follow-up are imperative for the success of this programme.

Box 3

CHINA

China's first Census in 1953 revealed a population of 600 million and a growth rate of 2 per cent per annum. The Chinese leaders quickly realised the need to stem this growth and although birth control policies and programmes were interrupted twice—in the late 1950s and in the late 1960s—party leaderships have given it the highest priority since 1971. The campaign began with the slogan, 'later, longer, fewer'—i.e., late marriage, longer interval between births, and fewer children (two in the urban areas and three in the rural).

In 1979, however, Chinese leaders felt that even a two-child family would not help control population growth significantly. The one-child family campaign was thus launched the same year. Since then, China's population control programme has achieved a uniquely sharp decline in fertility, unknown in the annals of demographic history.

had resolved to have no more children and received 'one-child certificates'. These certificates entitle a couple to increased income, health care at lower cost, better housing, larger pensions and eventually preferential schooling and employment for their only child. If a second child is born, the certificate holder has to repay all these benefits, in addition to other penalties.

While the dramatic decline in the birth rate in such a short time is unique, perhaps some aspects are not replicable in democratic countries as they depend on a different system of political control and community mobilisation. In China too, instances of coercion are not unknown.

Year	Total fertility rate (TFR)	Mean age of women at first marriage	Mean rate of natural increase (%)
1940-49	5.44	18.4	—
1950-59	5.87	19.0	2.2
1960-69	5.68	19.8	1.8
1970-79	4.01	21.6	1.9
1980	2.24	23.0	0.9
1981	2.63	22.8	1.6

Year	IUD insertions	Sterilisation		Induced abortions (in thousands)
		Female	Male	
1971	6173	1745	1224	3910
1972	9220	2087	1716	4814
1973	13950	2956	1953	5110
1974	12580	2276	1445	4985
1975	16744	3260	2653	5084
1976	11620	2700	1490	6570
1977	12974	2776	2616	5229
1978	10739	2530	763	5528
1971-78	94000	20330	13480	41230

The decline in the birth rate, growth rate and total fertility rate (TFR) was achieved through meticulous planning at all levels and closely monitored by barefoot doctors and health workers. All contraceptives are provided free of cost by friends, colleagues and neighbours trained to meet the people's needs and save them from visiting clinics, doctors and drug stores. These same workers direct people to nearby clinics for IUD insertions or sterilisations, services which are provided free of cost.

A massive publicity campaign in favour of the one-child family, supported by incentives and disincentives, was also launched. By 1981, 57 per cent of couples with only one child

IUD insertion is the most commonly practised means of contraception in China, followed by sterilisation. Other contraceptives used are the pill and condoms.

China's birth planning programme starts with the enforcement of late marriage, followed by the large-scale use of contraceptives and abortions. Meticulous follow-up and monitoring at the local level resulted in a fall in the natural growth rate to 1.2 per cent at the national level in 1980. In the urban areas, the one-child family is found among 80 per cent of the couples, while in rural areas it may be found to be as low as 25 per cent. The first order birth varied from 95 per cent in Shanghai city area to 43 per cent in the Guangdong province.

Rural peasants are thus still in favour of having at least one male child and discrimination against the female child, even infanticide, is not unknown.

A recent nation-wide survey in 1982 showed that there were about 170 million married women of childbearing age, of which 118 million (69.46 per cent) were using various birth control methods. The percentage distribution of acceptors according to method used was:

(i)	IUD	-	50.2	per cent
(ii)	Female sterilisation	-	25.4	per cent
(iii)	Male sterilisation	-	10.0	per cent
(iv)	Oral pills	-	8.4	per cent
(v)	Condoms	-	2.0	per cent
(vi)	Others (spermicides, injectables, etc.)	-	4.0	per cent

In 1986, a study team was sent by the Government of India to assess certain important indicators. These were the findings of the report:

Yet, with the national growth at 1.2 per cent in 1980, China increased its population by 20 million as revealed by the Census of 1990. The Republic of China, despite these efforts, has a population of 1.3 billion and will possibly have 100 million more than its target of 1.2 billion by 2000 AD.

	1953	1982
1. Total population (in millions)	584.19	1031.88
2. Crude birth rate	42.24	21.02
3. Crude death rate	25.77	7.89
4. Natural growth rate	16.47	13.20
5. Total fertility rate	6.00	2.71
6. Expectation of life at birth	40.25	64.72
7. Infant mortality rate	175	34.68
8. Maternal mortality per 1000 live births	N A	0.3
9. Average first marriage age		
Male:	N A	25.49
Female:	N A	22.80
10. Proportion of children (0-14 yrs) to total	N A	33.69(%)
11. Female illiteracy in the age group of 15-49 yrs	N A	35.6%
12. Enrolment of school-aged children in school	N A	95.9% (1985)
13. Average attendance rate in primary school	N A	96.7% (1985)

Box 4

INDONESIA

Indonesia's population is the fifth largest in the world, next only to China, India, the USA and the USSR. In 1981 its population stood at 149 million and is expected to reach 212 million by 2000 AD. Forty-four per cent of its population is below the age of 15 years, and the average number of children per woman is four. Sixty per cent of the population is concentrated in Java which constitutes only 6 per cent of Indonesia's total land area.

The Indonesian government was determined to control population growth and established the National Family Planning Coordination Board (locally known as BKKBN) in 1970 for the purpose. At the time, Indonesia's population growth rate was 2.2 per cent. This multisectoral body is directly responsible to the President. It has its own budget and staff at the central and provincial levels but the family planning field workers themselves are recruited locally from the villages and assigned the task of motivating young couples.

- Through training and orientation programmes for local community leaders, NGO's and various professional groups, positive broad-based support for family planning has been created
- In order to get the support of top religious leaders, mainly Muslim leaders, they were sent to Cairo to study Islamic views about family planning at Alashar University about 15 years ago. This has helped the programme tremendously and was given top priority during the first few years of the programme
- The BKKBN has been successful in achieving a blend of centrally developed policy and locally initiated implementation strategy. In this way it has been able to create the feeling that the family planning programme really belongs to the people

- The budget allocation accords the family planning programme high priority. The availability of adequate financial resources has helped the organisation to perform as a dynamic social development agency rather than a typical bureaucracy
- A very good information system and a communication network has been developed
- The active involvement of the village women as programme implementors has won their trust. The pill is the most popular contraceptive. The first cycle is given by the health worker but are later supplied by village volunteers. In some villages the villagers have developed novel ways of reminding the women to take the pill. Beating the drum or ringing the bell at a fixed time in the day are two examples. Other contraceptive methods offered are condom, IUD and sterilisation, but the choice is left to the individual acceptor
- Those couples who have practised family planning for 10 to 15 years are invited by the President to his residence, which is considered to be a great honour, and thus acts as an incentive
- Although no specific incentives are provided, people are encouraged in these ways to accept the family planning programme as their own and in their own interest

With these efforts Indonesia has been able to contain its population growth:

- The current estimated population is 179 million
- The TFR has come down from 5.6 in 1970 to 3.3 in 1987
- The population growth rate in 1990 was estimated to be 1.9 per cent



There is no programme in India which specifically addresses young newly-married couples. It is indeed astonishing that even as recently as 1988, only about 6 per cent of eligible couples were effectively protected by conventional contraceptive methods. Instead of concentrating on sterilisation and fulfilling targets by netting higher parity cases, the energies of the family planning workers and others should be diverted, and beneficially, towards popularising the IUD, condoms, oral pills, etc., so that all newly-married couples might accept these measures for at least three years. A concerted effort needs to be made in this direction.

An all-India survey conducted in 1983 showed a remarkably low prevalence rate of contraception among the young:

- Couples aged between 15-19 years — 5.75 per cent
- Couples aged between 19-24 years — 16 per cent
- Couples aged between 25-29 years — 32 per cent

This study should have been an eye-opener for programme administrators but was not. There is still ample scope for directing the programme towards younger groups.

Dandekar (1988) made an assessment of the family planning programme by examining the expenditure per eligible couple in different states over a period of six years, from 1980-81 to 1985-86 (Table 7).

He observed, 'In the aggregate the expenditure on family planning increased from Rs 12.14 per eligible couple in 1980-81 to Rs 37.07 in 1985-86. This is more than three-fold and cannot be attributed to increase in prices; during the period prices increased by only about 25 per

Table 7
Expenditure on Family Planning Programme per
Eligible Couple (Rupees)

State	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86
Andhra Pradesh	12.54	16.41	21.33	35.97	34.64	32.01
Assam	6.39	7.19	14.18	19.46	30.24	33.98
Bihar	6.89	10.22	15.93	16.55	18.97	23.47
Gujarat	17.13	27.17	32.87	45.47	47.81	53.60
Haryana	12.18	14.09	30.08	33.19	52.50	49.24
Karnataka	12.08	14.18	18.87	23.57	28.79	48.41
Kerala	12.81	18.06	21.24	25.03	50.71	59.59
Madhya Pradesh	9.14	11.96	17.75	21.67	28.51	31.20
Maharashtra	11.52	15.67	23.81	32.69	32.81	33.84
Orissa	17.34	24.90	35.40	42.52	37.42	35.17
Punjab	12.33	18.98	33.98	31.65	30.78	43.81
Rajasthan	10.11	13.22	16.51	23.08	25.03	30.87
Tamil Nadu	10.72	12.38	16.39	26.50	23.64	26.86
Uttar Pradesh	8.87	12.34	23.10	28.64	30.75	26.99
West Bengal	9.05	10.28	15.19	25.71	21.02	24.30
INDIA	12.14	16.26	23.75	30.87	33.46	37.07

cent. Clearly, the family planning programme has been greatly stepped up.' However, he noted, 'the application of the expenditure in different states is still very uneven [see Table 7] and the policy rationale and administrative mechanism of these large differences are not clear.'

He further observed that 'the cost per birth averted has increased from Rs 285.63 in 1980-81 to Rs 590.87 in 1985-86. This is more than double and is more than can be justified by increase in prices. Clearly, there is need for a scrutiny of the expenditure on the family planning programme. In particular, it is necessary to examine the advisability of continuing the compensation being paid for sterilisation without discrimination.' He agreed that 'the cost of averting a birth will inevitably increase progressively. Whatever the cost, the family planning programme must be pursued steadily. But it must perform. There is of course no alternative to the family planning programme.'

With regard to achievements in the area of various contraceptive methods, performance was satisfactory in comparison to the 1970s, but all was not well. This is corroborated by the findings of sample checks (1981-82) of family welfare acceptors by the Evaluation and Intelligence Division, and State and Regional Teams the Ministry of Health and Family Welfare. One of the main findings was that only 58 per cent of the acceptors received follow-up services. This is indeed a poor reflection of the functioning of the programme and

follow-up services, which must improve if the family planning workers are to gain credibility.



The report provided a break-up of cases who could not be contacted for verification in 1981-82 and the various reasons for this:

- | | |
|--|---------------------|
| (a) No such person living in the area | - 0.5 (in per cent) |
| (b) Couples who had left the place permanently | - 3.3 |
| (c) Couples who had left the place temporarily | - 7.4 |
| (d) Acceptors who died | - 0.1 |
| (e) Couples who could not be contacted due to wrong/incomplete addresses | - 5.2 |
| (f) Other reasons | - 1.3 |

While items (a) and (e) perhaps contained doubtful acceptors, item (f) needs further clarification. For, 1.3 per cent constitutes more than 2 lakh acceptors (out of a total of over 2 million—see Table 4), a figure that is too high to be classified under the vague category 'other reasons'.

The report also stated that there were 0.25 per cent ineligible cases for the following reasons:

- | | |
|---------------------------------------|---------------------|
| (a) Unmarried/widow/widower/separated | - 0.1 (in per cent) |
| (b) Wife above 45 years | - 0.04 |
| (c) Very old man | - 0.01 |
| (d) Spouse already sterilised | - 0.1 |
| Total | - 0.25 |

The figure for ineligible cases is also far too high. As the programme has picked up considerably and there are, on average, 4 to 5 million acceptors each year, there should really be no ineligible cases at all.

Plan Outlay on Health and Family Welfare

Table 8
Investment and Expenditure on Health
(Rs in crores)

Period	Total plan investment outlay (all heads of development)	Health	Family welfare	Sub-total	Water supply and sanitation
First Plan (1951-56) actuals	1960.0 (100)	65.2 (3.3)	0.1 (-)	65.3 (3.3)	11.0 (0.56)
Second Plan (1956-61) actuals	4672.0 (100)	140.8 (3.0)	5.0 (0.1)	145.8 (3.1)	74.0 (1.58)
Third Plan (1961-66)	8576.5 (100)	223.9 (2.6)	27.0 (0.3)	252.9 (2.9)	105.7 (1.2)
Annual Plan (1966-69) actuals	6625.4 (100)	140.2 (2.1)	82.9 (1.3)	223.1 (3.4)	102.7 (1.6)
Fourth Plan (1969-79) actuals	15778.8 (100)	335.5 (2.1)	285.8 (1.8)	621.3 (3.9)	458.9 (2.9)
Fifth Plan (1974-79) actuals	39426.2 (100)	780.8 (1.9)	497.4 (1.3)	1258.2 (3.2)	1091.6 (2.8)
1979-80 actuals	12176.5 (100)	223.1 (1.8)	116.2 (1.0)	339.3 (2.8)	387.6 (3.2)
Total Sixth Plan (1980-85)	109645.8 (100)	2015.5 (1.8)	1429.2 (1.3)	3444.7 (3.1)	3977.6 (3.6)
Seventh Plan (1985-90) outlay	180000.0 (100)	3392.9 (1.9)	3256.0 (1.8)	6648.9 (3.7)	6522.5 (3.6)
1985-86 (actuals)	33059.9 (100)	579.9 (1.8)	479.8 (1.4)	1059.7 (3.2)	1181.1 (3.6)
1986-87 (RE)	40260.7 (100)	683.1 (1.7)	530.0 (1.3)	1213.1 (3.0)	1325.0 (3.3)
1987-88	43677.9 (100)	773.0 (1.8)	572.9 (1.3)	1345.9 (3.1)	1533.65 (3.51)
1988-89	49817.9 (100)	868.1 (1.7)	600.0 (1.2)	1468.1 (2.9)	1700.32 (3.41)

Note: Figures in brackets indicate percentage of total (Col. 3).

RE: Revised Estimates.

Source: *Economic Survey*, 1988-89, and Reports of the Planning Commission and Ministry of Health and Family Welfare.

During the First Plan period, 3.3 per cent of the total plan expenditure was on health, excluding family planning, expenditure on which was negligible. While investment in health during the subsequent plan periods gradually declined to 1.8 per cent, the outlay on family welfare gradually increased to 1.8 per cent of total plan expenditure during the Seventh Five-Year Plan, almost equal to the health outlay. While this increase is a welcome step, the investment on health needs to be

augmented. There is a widespread feeling that health programmes are not given as much importance as they deserve. It is now an accepted fact that the provision of better health services to the people is the key to the success of the family welfare programme. Thus, a higher percentage of the total plan must be directed to health programmes, with specific allocations for the rural and urban areas. To date, the percentage allocation for the Minimum Needs Programme has never exceeded 32 per cent. This must be augmented to bring relief to the rural areas.

Seventh Five-Year Plan (1985-1990)

Reviewing the performance of the Sixth Plan, and keeping in view the poor performance of the states of Uttar Pradesh, Bihar and Rajasthan, as a result of which the national averages were considerably lowered, the Seventh Plan shifted the target of reaching an NRR of 1 by 2001 AD to the period 2006-2011 AD. The following were the goals envisaged to be achieved by 1990:

* Effective couple protection rate	42%
* CBR per 1,000 population	29
* CDR per 1,000 population	10.4
* Infant mortality rate	90
* Immunisation coverage	100%
* Antenatal coverage of pregnant cases	75%

To achieve these goals, the Plan emphasised the various components of the family welfare programme as also decided to undertake certain other measures outside family planning which would help persuade people to adopt family welfare measures and thus bring down the birth rate. A revised strategy was formulated by the Ministry of Health and Family Welfare after considering the findings of the three market research organisations which were hired to carry out independent evaluations of work in the area of family welfare. Although the programme was implemented in accordance with the revised strategy, the goals were not achieved.

The plan outlay for the Seventh Five-Year Plan was Rs 3,256 crores, but the expenditure incurred was Rs 2,850 crores.

Table 9

Year	Vasectomy	Tubectomy	Total
1985-86	639477	4262132	4901609
1986-87	809605	4233580	5043185
1987-88	754085	4184852	4938937
1988-89	617328	4060827	4678155
1989-90	341256	3840066	4181322
1990-91	249017	3872963	4121980



The number of sterilisations (Table 9) reached a peak of more than 4 million during the Seventh Plan period, and during 1986-87 the figure crossed 5 million. The most encouraging aspect of the performance during the Sixth and Seventh Plan periods is the fact that the number of non-terminal acceptors also increased gradually.

The number of IUD acceptors crossed the 1 million mark in 1982-83 and gradually increased to almost 5 million (4.9 million) in 1989-90. The number of conventional contraceptive users also increased gradually to 13 million and oral pill acceptors to over 2 million in 1989-90. Although the maternal and child welfare component was to be undertaken through the Universal Immunisation Programme (UIP) all over the country, a country-wide evaluation on a sample basis by the National Institute for Health and Family Welfare (NIHFW) in 1989-90 revealed that the programme is far from satisfactory. With only 50 to 60 per cent coverage, the lapses must be corrected by the concerned agencies.

Although the family welfare programme picked up steadily during this time, once again there was cause for concern. Despite repeated emphasis that coercion was a thing of the past, some cases of complications and

MATERNAL AND CHILD HEALTH COMPONENT OF THE FAMILY WELFARE PROGRAMME

It is being increasingly realised that unless there is a significant improvement in the quality of maternal and child health (MCH) services, besides the widespread propagation of family planning methods, it is unlikely that there will be a decline in fertility concomitant with improved health of the woman as well as her child. In recognition of this, the family welfare programme seeks to promote MCH as its primary object in its quest to achieve national demographic goals.

Good health of children inculcates a sense of security in the parents that their offspring will survive and live a healthy life, which in turn contributes to the acceptance of a small family norm. Hence, under basic maternal and child health care services, the mothers should be provided with antenatal, natal and post-natal care, and infants and preschool children should be monitored for their growth and development, adequate protection with immunisation, and early detection and treatment of diarrhoea and other childhood diseases.

The importance of maternal and child health development and the crucial role in improving the quality of our human resources has been repeatedly stressed, and the major thrust of all welfare programmes has been directed towards the health of mothers and children, emphasising preventive, promotive and educational aspects of MCH services.

Despite lofty ideals that permeate the family welfare package, all available data on the health and nutrition status of women and children and the level of MCH services indicate the poor health of women and children and the low level of services. This situation has persisted in spite of considerable economic development in the country and the availability of low-cost health technology which is capable of improving the health status of this group significantly. Due to deep-rooted socio-cultural factors related to the poor status of women in society, the major brunt of the non-success of these programmes is borne by women, especially those from the lowest strata.

Some social philosophers perceive this process as a manifestation of a dominant capitalist development ideology which simultaneously strengthens and alters male-dominated structures. In this context, the history of MCH services in India provides some insights.

In the early 19th century, modern methods of MCH were introduced by missionaries to make women aware of Christian ideals and doctrines and to invite them into the fold of Christianity. It also enlarged the base of operations of Western medicine which in England was becoming highly organised and sex- and class-biased. Indigenous maternity practices were perceived to be the main cause of the high maternal mortality and modern practices, especially in hospitals, were seen to be progressive, safer and more hygienic.

Modern maternity practices through the MCH movement were promoted as being commensurate with the philosophy of the reform movement advocating women's education in India—that as mothers they would be capable of giving birth to and bringing up a new generation of progressive Indians. However, as the outreach was confined to the urbanised upper classes in the presidencies, there was no impact on maternal and child mortality in the country.

MCH continued to be a priority area in the post-Independence health policies. The Bhore Committee viewed these services not only as a measure for reducing maternal mortality but as a necessity in order that women could adequately perform the function of motherhood. Facilities for the protection of women's health in the 'productive' sphere were mainly

meant to ensure her 'reproductive' adequacy. But at the same time the maternity and child welfare centre 'with its combined attack on the health and social problems of the Indian home' was expected to play a vital role in the programme of national reconstruction.

The protection of the health of the expectant mother and her child became of paramount importance and the mother was recognised to be the channel for educating the entire family. Increasingly, however, investments in the reproductive health of the woman became far more important than her health in the factory or the field. Though MCH continued to have pride of place in government priorities, its focus became narrower and its implementation poor. The MCH programmes did not recognise the real causes of maternal mortality and their impact on the section of the population which accounted for a large proportion of maternal deaths was minimal.

There has been a revival of interest in MCH in recent years which has to be seen in the context of other developments such as the status and location of women, the current priorities of the state as well as the pulse of popular movements. The growing influence of the women's movement on national and international policies has highlighted the low social, economic and health status of women. Indices such as maternal mortality can no longer be ignored. The changing health status, health care structure and the priorities of health have sharpened the class and sex differential more than ever before.

While there has been a significant increase in the employment of women in the service sector—women from better-off sections of the urban working class and the middle class with access to formal education—the share of women in the labouring sector is rapidly declining. This is an instance of the development processes resulting in the deterioration of the social and economic status of women.

As the state needs to sustain the growth of the purchasing power of the expanding middle class, women's employment in certain spheres becomes a desirable goal. Thus, health care for women to ensure that they are able to handle the two spheres of activity becomes a necessary service which the state accepts responsibility for. Promoting the small family norm too is desirable to optimise resources and to socialise children according to the dominant societal norm.

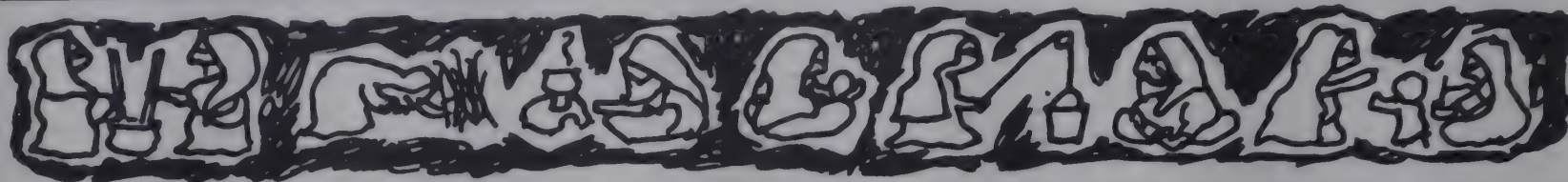
In qualitative terms as well, the concerns of the state become manifest. Thus, the nutritional supplement component of these programmes, for instance, is irrelevant to the section of the population which cannot obtain two square meals a day; pumping an expectant mother with vitamins when she has an abominably low calorie intake is also absurd. The component is really meant for a different class—the small farmer or the lower middle class, where there is just about sufficient food but not enough to take care of the extra needs of pregnancy.

Through the breastfeeding campaign, the immunisation programme and the *anganwadis*, the woman's role in the upbringing of the child is being redefined. The concept of the family with its hierarchies as the primary socialising institution in a male-dominated, market-oriented society is being re-emphasised. Investments in the family and in children are rising. In order to ensure the continued existence of the family, the ruling class has to reconstruct the female stereotype which will accommodate the new feature of an employed mother and wife.

Any critique of state services, especially in the area of MCH, must ensure that the trends which emerge as a result do not reject state services by opting for more expensive and perhaps

less efficient private care. This will only be an impetus to the tendency of the state to absolve itself of its welfare obligation. On the other hand, by highlighting the inadequacies of the services, there is a possibility that this might result not only in better services but also reveal the non-viability and insincerity of welfare goals.

At the same time, the sexist and class bias of these services also need to be brought out in the open. The fact that these programmes project a model of Indian womanhood which reinforces existing norms which themselves need to be challenged is a task that the health groups and the women's movement must take seriously.



Box 6

WHOSE SACRIFICE, WHOSE SURVIVAL

The present population control policy favours technological interventions instead of examining the problem in its holistic perspective. In a desperate quest to meet the lofty targets set by the planners and decision-makers, the bureaucrats rely on technology. The casualty of this approach is individual dignity and freedom, and the worst victims of this assault on human dignity are women. The government-sponsored sterilisation camps, which provide the medical bureaucracy an opportunity to fulfil these targets, present an atmosphere of deprivation and insensitivity, as the following extract from the article 'Whose Sacrifice, Whose Survival' by S.G.Kabra and Harsh Sethi indicates.

Official records recently discussed in the Rajasthan Assembly reveal that 44 women have died in the course of family planning operations since 1986. This figure is likely to be a serious underestimate, not only because it is official, but because it does not account for casualties due to later complications. Though the concerned minister took great pains to argue that the death rate in Rajasthan was only 1.1 per 10,000 cases as against a national average of 1.7, we would do well to remember that the acceptable death rate as per the World Health Organisation (WHO) is one per one lakh operations, making the Rajasthan figure 11 times higher than internationally acceptable figures.

Equally horrifying are the stories of Geeta Rawal, Suman Sethia and Manbhari, as reported in *The Telegraph* (24 May 1988). Geeta was paralysed as a result of an incompetent tubectomy operation, and for the last one year has been in a Jaipur hospital. So too Suman, who has been battling for normalcy for the last two and a half years. These cases incidentally do not feature in the 'honour roll' of 44. The same report reveals that in a camp at Madar, Ajmer district, Dr Padma Vachhani performed 140 operations in a single day! Need we say more?

In a sterilisation operation, the woman submits to a surgical procedure from which she does not stand to benefit health-wise. The operation is, however, justified on the grounds that the risks of pregnancy are greater than those of sterilisation. It is a moot point whether probability charts offer much succour to the individual who is at the receiving end.

Rarely is it realised that the person submitting herself to such an operation (which is not for a disease), motivated probably by her family, friends or more likely the inducements offered under the official programme, is doing so to benefit society. She is thus worthy of the greatest care and respect from the medical establishment, and not, as is common in the case of a mishap, to probabilistic platitudes of 'inevitable and unavoidable risks'.

Mass sterilisation camps end up resembling a slaughter

house. Given the vast number of women who present themselves for sterilisation, the doctors are put under pressure to clear the numbers as fast as they arrive; everything scientific and safe is sacrificed in the interest of speed, with an inevitable decline in standards as evidenced by the horrifying statistics that emanate from these camps. The faults which occur at every stage are discussed below:

1. Against the mandatory procedure, that only physically fit women are operated upon, the clinical check-up is casual and quick. The menstrual history of the woman is taken at face value, such that it is not uncommon for sterilisation to be carried out on a patient already pregnant. Rarely is the subject given a careful examination, let alone a full clinical check-up. Almost never is she examined for heart and lung diseases, or even a pelvic infection that may well flare up because of the operation.
2. No care is taken for the comfort and privacy of the woman. Vaginal examinations are conducted even when others are present inside the room or tent. A thin flap separates the woman from the milling crowd outside awaiting their turn and the screams from the patient are freely heard. All this adds to the apprehension and fear of not just the woman on the table, but those outside as well.
3. More shocking is the absence of proper equipment. A properly carried out laparoscopic sterilisation requires a sterile laparoscope, carbon dioxide to create a pneumoperitoneum (gas inside the abdominal cavity to make the procedure easier and safe), and various surgical instruments and sutures which should be properly sterilised. What we normally encounter is a laparoscope cleaned only with water or a spirit swab and placed in a cabinet of formaldehyde vapour for ten minutes or less which does not ensure sterilisation. In place of carbon dioxide, what is used is air, and that too in some camps through a bicycle pump, without a thought for the blindness, brain damage or death that can result from the air entering the blood vessels in the form of bubbles.
4. Instead of proper anaesthesia, what is given is a half-hearted and perfunctory local anaesthetic infiltration combined with a sedative, which while making a patient drowsy, does little to mitigate pain. The five to ten minutes that a local anaesthetic takes to achieve its effect is too valuable for the camp organisers to waste!
5. The surgical procedures may well be crudely and inexpertly performed. Tasks which demand skill, such as passing a metal rod into the uterine cavity through the vagina to

enable tubal ligation, are left to non-medical personnel, often with disastrous consequences. The doctors who are sent to these camps are usually too young and inexperienced, and given the pressure of numbers and destabilising environment end up converting a 'minor procedure' into a full-blown operation with all its attendant complications.

6. Finally, what is shocking is the near complete absence of after-care and review. Since the patient is seen only as a statistic, there is no institutional procedure and pressure for follow-up, or for listening to and attending to complaints. The net result is an appalling frequency of intractable pelvic infections requiring removal of the uterus. Deaths due to resultant hysterectomy occur in one out of every 5,000 women targeted for sterilisation. Rarely is it realised that tubal ligation fails in 1 one per cent of the women, who become pregnant in spite of the operation. Fifteen to 20 per cent of failed ligations thus result in ectopic (outside the uterus) pregnancies, which carry a 30 per cent fatality rate.

What is all the more shocking is that all this is neither unknown nor unexpected. Why, even reputed journals such as the *Journal of Obstetrics and Gynaecology* reports cases of a single doctor

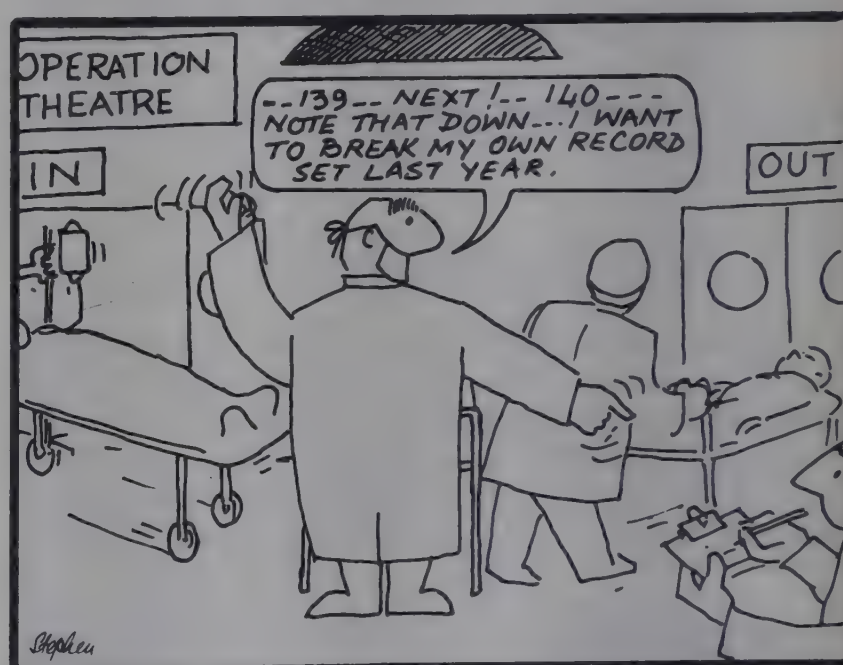
performing 60,000 operations in one year, or another 2,800 in three months. Figures of mortality varying from 7 to 150 per 1,00,000 reported from different camps should thus cause us no surprise. The talk about the 'population problem', a proliferation of incentive-based schemes for both doctors and patients to lure women into sterilisation, and the pressure to handle all this on a war-footing—the stage seems well set for an orgy of sacrifice on the altar of patriotism.

There is, as always, in such 'horror tales' a lesson and a moral to be drawn. The regulation of family size is undoubtedly a worthwhile objective, both for society and the concerned individuals. But to be stunned into inactivity by a spectre of 'the teeming millions' overcrowding an already burdened globe, and to leave the initiative to a techno-managerially inclined bureaucracy and medical establishment, is only to invite disaster. One only wonders why our socially conscious investigative journalists, the dozens of very active women's groups, or even sensitive medical personnel, what to speak of our esteemed representatives in the State Assemblies and the Parliament have so far not created a furore. It cannot be that they are all struck with a myopia caused by incidents that seem scattered and involve small numbers. Do we always have to wait for a Bhopal to act?

fatalities after tubectomies raised doubts about the credibility of this statement. Press reports (*Illustrated Weekly of India*, 28 February and 14 August 1988) about complications after the tubectomies of Geeta and Suman Sethia are a case in point. They had been in Sawai Man Singh Hospital, Jaipur, for five and 18 months, respectively, for treatment when the press reports came in. The case of 22-year old Sushila being forcibly subjected to a tubectomy operation in Samerpur-Hamirpur in Uttar Pradesh drew attention to the actual functioning of the family welfare programme in Hamirpur, which had ranked first in target achievements the previous year.

According to newspaper reports, a survey of three primary health centres in Hamirpur revealed half a dozen cases of criminal neglect and callousness and one case of a tubectomy death. The records of sterilisation operations performed were found to have been falsified.

In October 1990, the *Independent* carried an article which said that it had been reported in the Rajya Sabha that 363 women died as a result of faulty tubectomy operations during the year 1989-90. It was also revealed that 'in the last three years, the Union Ministry of Health reported at least 1,100 persons as victims of sterilisation.' This is much more than the death rate of 0.5 per cent per lakh sterilisation cases, as accepted by doctors, statisticians and other technical persons. But for the poor villager the loss is even greater. Because these acceptors were otherwise physically normal, their families—as also friends, neighbours and the people in the village community—find it all the more difficult to accept the consequences of the operation. Unless such cases are prevented, the people are bound to reject the programme, as a result of which it will never become a people's programme. The over-enthusiasm of some doctors to operate will also have to be controlled.



Doctors take on several operations a day (even up to 140 cases per day!), far in excess of the limit set by the Ministry of Health and Family Welfare.

The Programme Evaluation Organisation of the Planning Commission once again evaluated the implementation of the family welfare programme and submitted its report in 1986. These were some of the salient findings:

- The single most important reason for adopting family planning was the economic factor. About 50 per cent of the couples covered in the study mentioned that they adopted family planning in view of the economic difficulties they might face if they did not limit their family size.
- The incentives provided by the programme were, by and large, an inconsequential factor in the decision to adopt family planning.

- The majority of the respondents believed that the amount of incentive offered was meagre. Of all the suggestions to improve the programme, nearly half were in favour of giving preferential medical treatment instead of monetary incentives
- About 80 per cent of those surveyed had not started practising family planning till the female partner had reached the age of 25 and the couple already had one child
- Almost all eligible couples (98 per cent) were aware of family planning programmes. The non-adopters were almost as knowledgeable and convinced of the advantages of family planning as the adopters
- As many as 88 per cent of the respondents used the mass media. The radio emerged as the single most important medium
- The non-terminal methods of IUD and condom were known to a much lower percentage of respondents. One surprising finding of the study was that medical termination of pregnancy (MTP) was known to 0.4 per cent of the sample adopters and 0.2 per cent of the sample non-adopters

Training

Training is the most important component necessary for a programme such as family planning in a country as vast as India. Due importance was given during the First Plan period to the training of various categories of staff. Sufficient funds were also allocated for training and retraining staff during the subsequent plans as well.



Training institutes for various levels of staff were established all over the country over the years. By the end of the Third Five-Year Plan, 42,017 personnel were trained under regular and short-term training courses: doctors—7,659, auxiliary staff—34,358.

In order to meet the need to train a large number of personnel within a short time, the Government of India estimated the training needs during the Interplan period (1967-68) to ensure proper planning:

Table 10

<i>Categories</i>	<i>Total number required to be trained</i>
Doctors	10783
Extension educators (DEE, EEs of urban areas and PHCs)	9917
Auxiliary nurse midwives	54621
Health assistants	22421
Public health nurse/LHV	11572
Other staff	14889
Total	124203

The training of key trainers was an important aspect. They were trained in five central training institutions. The Government of India estimated that about 1,56,000 technical personnel were required to man the programme all over the country but only one lakh personnel were in position even during the early 1970s, i.e., about 45 per cent of the positions were unfilled. Moreover, even the training of the existing manpower left a lot to be desired. About 450 auxiliary nurse midwives' training centres and 44 regional family planning training centres (now RHWTC) were established over the various plan periods. To help the states, 16 central family planning field training units were also established, in addition to the National Institute of Health Administration and Education (NIHAE) and the International Institute of Population Studies (IIPS).

During the period 1969-70 to 1973-74, 11,988 doctors and 1,21,733 other personnel were trained. Thus, the load on the training institutes was enormous and there was also a shortage of trained staff at these training institutes. Sadashivaiah (1972) wrote: 'Except the central institutions which are fully staffed, the country as a whole requires 460 persons to man the regional family planning training centres. The actual position of the staff sanctioned is 390 and only 303 are in position. Untrained personnel [account for] one-third of the total in position'—an indication of how we are equipped to train personnel to carry out the programme.

From the Fifth Plan onwards, the most vital and important task was to train all unipurpose workers under various vertical programmes into multipurpose workers. The number and categories of personnel trained up to 30 June 1987 are presented in Table 11.

Table 11

Categories	Total number of staff trained
Key trainers	864
District MOs	11730
DDEM/O/Dy. DEM/O/ MO-PHC (up to 487)	373
BEEs	18669
Health assistants (Male)	5603
Health assistants (Female)	87299
Health workers (Male)	18070
Health workers (Female)	88632
	80719

Source: *Annual Reports* of the Ministry of Health and Family Welfare.

Despite a massive training programme, the quality of training is deficient. In addition, the age-old grievances among the staff about rationalisation of pay scales and designations still exist because the administration has failed to resolve the problems. Naturally, the programme suffers at the hands of a disheartened and frustrated staff. Both the central and state governments need to look into these issues urgently in order that the programme does not suffer.

Education and Communication

The Ministry of Health and Family Planning/Welfare produced various types of educational materials over the different plan periods to create awareness among the people and provide them with sufficient relevant information regarding sex and family life. Exhibitions, *swasthya melas* and baby shows were also organised to draw people's interest. The inverted red triangle, the symbol of a happy family of a father, mother, a son and daughter, and several popular slogans were adopted during the years 1966 to 1969 to spread the message of family planning.

The Department of Family Planning introduced the mass mailing project to send out information about family planning to specific audiences all over the country. The mailing unit covered about 3.8 million individuals who received motivational and informative literature on various aspects of family planning.

From May 1967, the All India Radio was also involved in disseminating family planning messages. In addition, newspapers and the film media too were used to carry these messages to the masses. However, the success of these measures was limited. A survey carried out in 1956 by the Department of Statistics at the University of Kerala found that 'the newspapers generally did not reach the rural people and that their value as a source of communication was heavily restricted because of illiteracy among the rural population.' In a survey of family planning clinics in Greater Bombay it was found that the role of newspapers along with other printed media was relatively insignificant in disseminating information on family planning (Banerjee 1979).

The Indian Institute of Public Opinion estimated that national readership of newspapers in India was 34 per cent in 1959 and 36 per cent in 1962, and it was estimated that 60 per cent of the rural population neither read nor had newspapers read to them. The same studies indicated that the radio too had a restricted role as a means of family planning communication in rural areas as only a few owned sets. Various studies found that the film medium was popular amongst the masses and was possibly the best means of transmitting messages about family planning. Yet, according to an estimate by the Indian Institute of Public Opinion, only 20.4 per cent of adults in India were exposed to cinema even in 1971.

The Media Division of the Ministry of Health and Family Welfare began Orientation Training Camps (OTCs) in the rural areas in 1978-79. Large sums of money were spent to organise several such camps all over the country. The results, however, were disappointing.

In 1980, a collaborative study was carried out by the National Institute of Health and Family Welfare International Institute of Population Studies, Gandhigram Institute of Rural Health and Family Welfare Trust, and



three population research centres in Bangalore, Lucknow and Patna, to evaluate these camps. The study revealed that:

- There was a very high understanding of the advantages of the OTC scheme on the part of both the officials (92 per cent) and the participants (males 96 per cent, females 98 per cent). Those who attended the OTCs found them useful and 95 per cent of both male and female participants were eager to attend more such camps in future
- The nature of orientation in these camps failed to place the population problem in the context of the lives of the participants. Most of them did not consider the issue of population or family planning an important community problem
- The booklets prepared by the centre had not reached most of the places where the camps were held. However, in places where these were available, less than one-fourth were found useful by the participants. It was also found that very few states had developed their own educational literature, especially for the camps, which they had been required to do. Very few of the participants interviewed (20 male and three female) had received printed materials regarding family welfare through the mail

Putting together the findings pertaining to the performance of the participants, as reported by the respondents themselves, one could conclude that the OTCs had resulted in the active involvement of the participants, and thus their active participation in the family welfare programme. But does this conclusion hold true?

The study included only those participants in the camps held during the first two years of the introduction of the scheme—i.e., 1978-79 and 1979-80. Although far fewer female than male participants could be interviewed, it was found that the impact was greater on female participants.

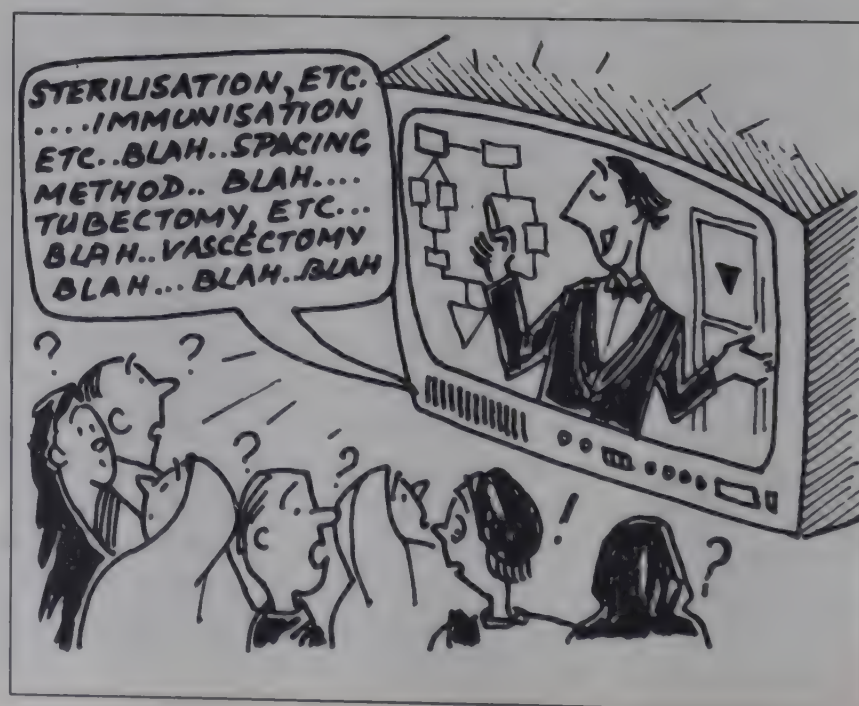
The study concluded that 'it may be said that though the usefulness of the OTC scheme is realised and accepted by both the officials as well as the rural people, the implementation of the scheme faced several difficulties due to various constraints. The situation can perhaps be improved by holding only as many camps as can be organised in a proper manner and by ensuring the fuller support of the officials as well as by mobilising all resources to make OTCs successful and to ensure follow-up activities.'

There was a perceptible change in media activities from the later part of the Sixth Plan period. Prime-time on AIR and TV came to be devoted to spot messages on family planning. A content analysis was undertaken by the NIHFW of the responses received from viewers of TV spots and press advertisements on matters relating to proper age at marriage for girls, immunisation of pregnant mothers, immunisation of children and family

planning methods. Although the study had the limitation of drawing responses from an unrepresentative sample of the community (only the views of the literate were taken), it revealed some important facts:

- TV spots were more effective as they could be understood by the illiterate as well
- Some respondents were interested in finding out more about the negative effects of early marriage, but the majority were aware that the marriage of girls under 18 years and boys under 21 years is against the law
- The majority of the respondents wanted details which had already been provided in the spot messages. This indicates that perhaps too much information is packed into too short a time for the people to assimilate
- The respondents were more interested in details about the immunisation of children rather than pregnant women
- Regarding family planning methods, the respondents wanted information about new methods of contraception and the spacing method. There were few enquiries about vasectomy or tubectomy
- The study concluded, 'as TV has a better coverage and reach in eliciting responses from the states where illiteracy is high, the message should be clear and too much loading should be avoided'

Thus, it is not enough to acknowledge that films and TV offer the best means of spreading the small family norm. The manner of communicating these messages is equally important. Often, scenes depicting situations which are in total contradiction to the experiences of the village people cannot but alienate them from the message. These and other related areas need to be tackled and stress needs to be placed on more personalised communication with the eligible couples who are the target of these messages.



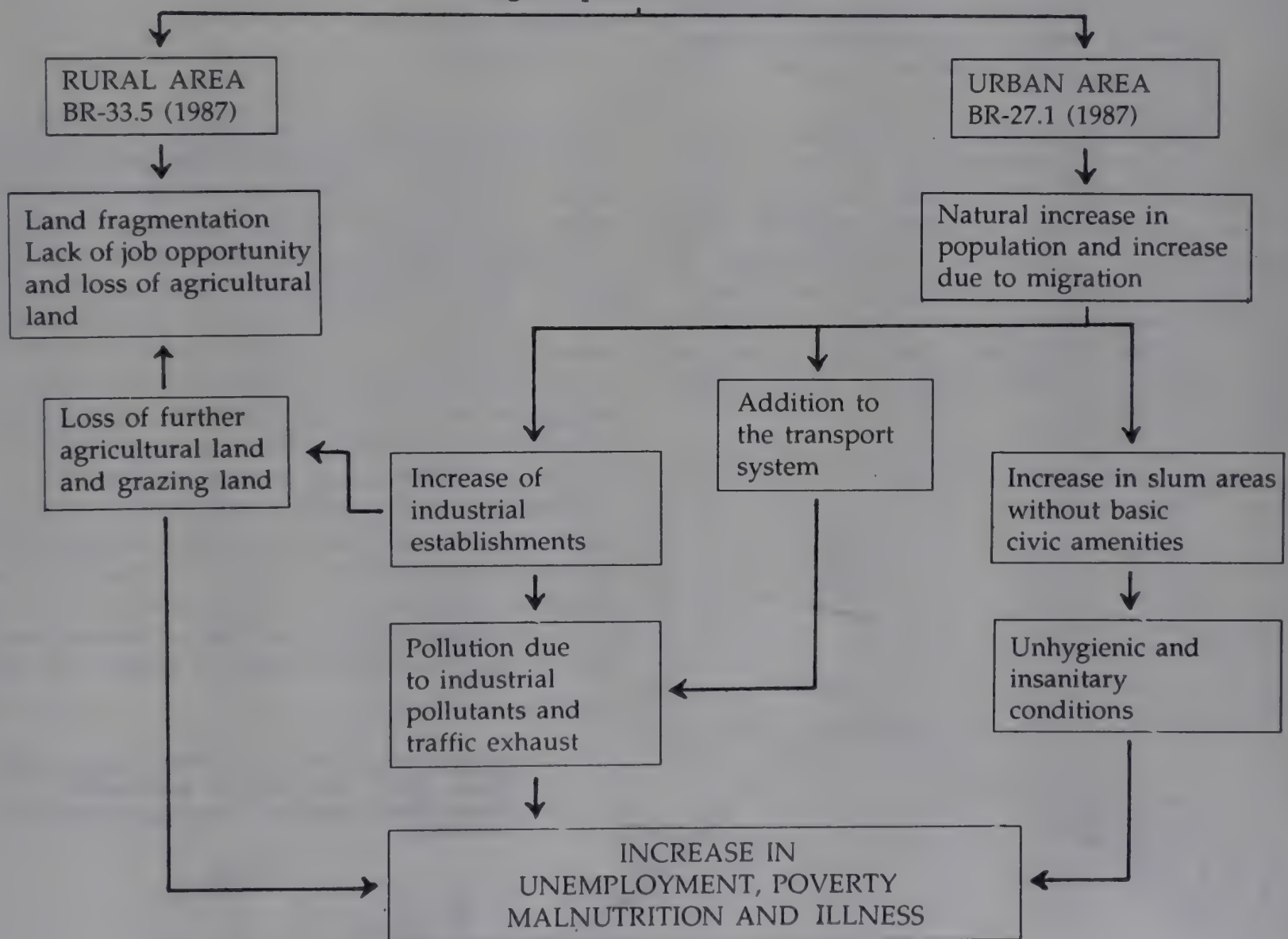
Population Growth and its Impact

The high rate of population growth has a multidimensional effect on society as a whole. Although planned development has to a certain extent mitigated the problems of food, clothing, shelter and nutrition, certain areas remain of grave concern. Today, about 40 per cent of the population lives below the poverty line. The birth rate in the rural areas is 33.5 (SRS 1987) per 1,000 and in the urban areas it is 27.1 per 1,000. But the urban areas also have a very high rate of in-migration which not only affects the growth rate but creates several other problems in both the rural and urban areas. The rural population, pushed out by a high birth rate and the resulting land and employment scarcity, flock to the already over-

crowded urban areas in search of work. The urban areas are now characterised by expanding slums which lack even the basic civic amenities. Lack of drinking water, sanitation, electricity, jobs and accommodation are only a few of the problems. Industries are no longer at the periphery due to the large-scale expansion of urban areas: hence, the pollution in the atmosphere can only be detrimental to health. Poverty, pollution and thus ill-health have now become a way of life (Figure 1).

Thus, proper urban and rural planning must accompany population planning as about one-third of the Indian population will be residing in urban areas by the end of the century, mostly in urban slums. The strategy for planning the urban future should include the following:

Figure 1
High Population Growth



HOW CAN THE MIGRATION OF THE CITIES BE STOPPED?

BY: (a) Resettlement of both urban and rural youth in rural areas

(b) Establishing new industries in the rural areas

(c) Creating more job opportunities and self-employment opportunities in rural areas.

- Policies for the revitalisation of cities by improving and expanding civic amenities
- Policies for redistribution of population by encouraging the growth of smaller towns
- Policies for decentralisation of development by opening up avenues for more job opportunities in the rural areas
- Measures to stabilise the population by providing better health care, increasing female literacy, and providing full employment to females in the rural areas

These measures will, it is hoped, curb the rate of migration to urban areas and help reduce both pollution and population growth.

Impact of the Programme

It is evident from the foregoing that it is very difficult to judge the impact of the family welfare programme as there are several quantifiable (population) and unquantifiable (economic, social, attitudinal) aspects to be considered.

The Ministry of Health and Family Welfare estimated that more than 110 million births had been averted between 1956 and 1990. This has been possible due to the protection provided by the various methods under family planning, i.e., sterilisation, IUD insertion and the use of other conventional contraceptives, oral pills, etc. Table 12 shows the total number of contraceptive acceptors, number of couples protected, percentage of couples protected and the number of births averted between 1956 and 1988.

Table 12

Year	No. of acceptors annual (million)	No. of couples protected (million)	Percentage of eligible couples protected	Births averted (cumulative) (million)
1956-64	0.1	1.0	1.2	0.3
1965-70 @	2.8	8.6	9.4	4.9
1970-75	4.7	15.3	14.9	17.5
1975-76	6.8	17.8	17.0	20.6
1976-77	12.5	25.3	23.6	24.3
1977-78	4.5	24.6	22.5	29.4
1978-79	5.5	25.0	22.3	35.3
1979-80	5.5	25.4	22.2	39.2
1980-81	6.5	26.4	22.7	44.2
1981-82	8.1	28.2	23.7	49.2
1982-83	11.0	31.4	25.9	54.7
1983-84	14.4	36.2	29.2	60.7
1984-85	16.4	40.7	32.1	68.2
1985-86	18.9	45.2	34.9	76.4
1986-87	20.6	49.7	37.5	95.4
1987-88	22.6*	54.0*	39.8*	95.3*

@ Average for the period.

* Provisional.

However, the credit for the number of births averted does not lie with contraceptive coverage alone. Furthermore, the number of births averted does not necessarily reflect a declining birth rate. For instance, although there was no family planning programme during the first half of this century, the decadal birth rate came down from 49.2 in 1911 to 39.9 in 1951, and thereafter, despite immense effort and expenditure to 37.2 in 1981. And, much of this downward trend can be attributed to the socio-economic development that has taken place, particularly the marginal increase in female literacy and raising the minimum age at marriage for girls.

The birth rate is declining very slowly—it has come down from 41.7 per 1,000 population during 1951-61 to 32 per 1,000 population in 1987. Although the couple protection rate increased over the years to achieve the short-term demographic goals fixed at various points of time, it has never been possible to achieve the same.

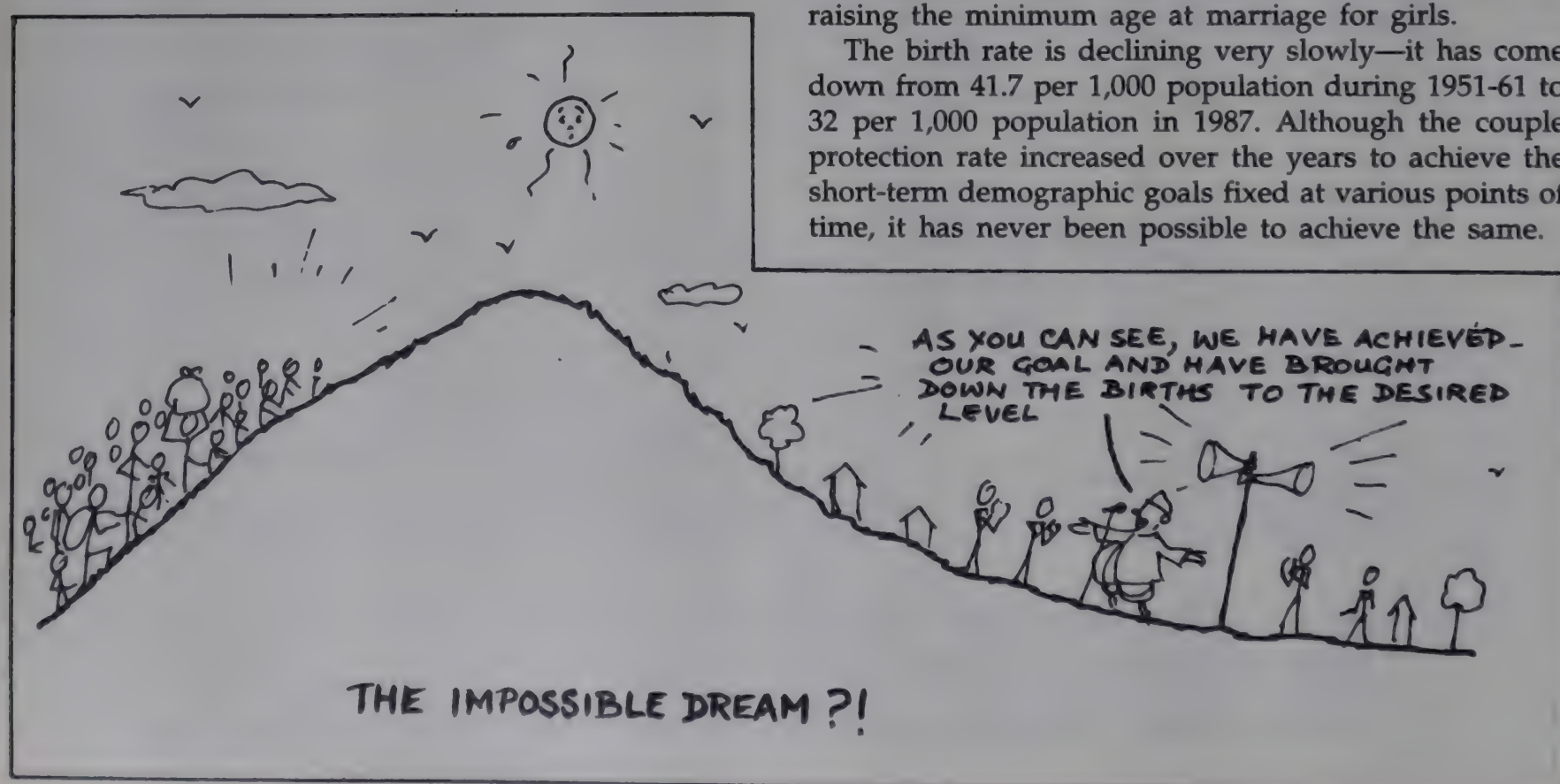


Table 13

Year in which the goal was set	Target to bring down the crude birth rate to	Year by which the goal was to be achieved	Actual achievement
1962	25	1973	34.6
1966	25	As expeditiously as possible, preferably by 1975-76	35.2
1958	23	1978-79	33.3
1969	32	1974-75	34.5
Beginning of Fourth Plan 1974	25	1979-81	33.8
	30	1979	33.7
Beginning of Fifth Plan April 1976	25	1984	33.8
	30	1978-79	33.3
Population Policy 1976 April 1977	25	1983-84	33.7
	30	1978-79	33.3
Population Policy 1977 January 1978 (CCH and FW)	35	1983-84	33.7
	30	1982-83	33.8
National Health Policy 1983	31	1985	32.9
	27	1990	30.5
	21	2000	(SRS-1989)
Seventh Five-Year Plan	29.1	1990	(SRS-1989)

Although we have not achieved the goal of bringing down the crude birth rate (CBR) to 29.1 by the end of the Seventh Plan, the Census of 1991 will shortly tell us how close we are to it.

Various hospital statistics reveal that higher parity births are gradually declining. A survey undertaken by the Registrar General of India in the 1970s also confirms this (Table 14).

Table 14

Order of birth	% Rural		% Urban	
	1972	1978	1972	1978
1	2	3	4	5
1	19.85	23.45	21.60	25.75
2	17.44	20.63	18.22	23.33
3	15.70	17.49	16.19	17.88
4	13.77	13.38	14.45	12.22
5	11.24	9.69	9.52	7.93
6 or more	22.00	15.36	20.02	12.89
All	100.00	100.00	100.00	100.00

Source: Registrar General of India, New Delhi, *Survey on Levels, Trends and Differentials in Fertility*, 1979.

The above table shows that the percentage of fourth and higher order births came down from 62.71 in 1972 to 55.92 in 1978 in rural areas, and from 60.18 to 50.92 in urban areas during the same years. Though slow, this trend is a reflection of the impact of the efforts of the family welfare programme to a certain extent. Only if the programme is pushed forward to achieve more than 80 per cent of births of the first and second order within this decade can there be a substantial decline in the birth rate.

Sterilisation, as we have shown, remains the single most popular means of birth control. Table 15 shows the total number of sterilisations performed since the beginning of the Second Plan period. Careful observation shows that the percentage of vasectomy acceptors is gradually declining. This is unfortunate because vasectomy, as opposed to tubectomy, is a simple, safe and minor operation. It does not require hospitalisation, and the chances of fatality or even complications are negligible.

Table 15
Sex-wise Break-up of Sterilisations Performed (Since 1956)

Year	Number of sterilisations			Percentage of vasectomies to total
	Vasectomy	Tubectomy	Total	
1	2	3	4	5
1956	2395	4758	7153	33.5
1957	4152	9584	13736	30.2
1958	9189	15959	25148	36.5
1959	17633	24669	42302	41.7
1960	37596	26742	64338	48.4
1961	63880	40705	104585	61.1
1962	112375	45490	157947	71.1
1963	114621	55625	170246	67.3
1964	201171	68394	269565	74.6
1965 January to March 1966	576609	94214	670823	86.0
1966-67	785378	101990	887368	88.5
1967-68	1648152	191659	1839811	89.6
1968-69	1383053	281764	1664817	83.9
1969-70	1055860	366258	1422118	74.2
1970-71	878800	451114	1329914	66.1
1971-72	1620076	567260	2187336	74.1
1972-73	2613263	508593	3121856	83.7
1973-74	403107	539295	942402	42.8
1974-75	611960	741899	1353859	45.3
1975-76	1438337	1230417	2668754	53.9
1976-77	6199158	2062015	8261173	75.0
1977-78	187609	761160	948769	19.8
1978-79	390922	1092985	1483907	26.7
1979-80	472687	1305237	1777924	20.6
1980-81	438909	1613861	2052770	21.4
1981-82	573469	2218905	2792374	20.5
1982-83	585489	3397700	3983189	14.7
1983-84	661041	3871181	4532222	14.6
1984-85	549703	3534880	4084583	13.5
1985-86	639477	4262132	4901609	13.0
1986-87	809605	4233580	5043185	16.1
1987-88	754085	4184852	4938937	15.3
1988-89	617328	4060827	4678155	13.2
1989-90	341256	3840066	4181322	8.2

Despite this, government policy in the area of family planning is directed towards women and favours tubectomy. In fact, the government has promoted several related schemes from time to time: tubectomy through the vaginal route (without any scar on the abdomen),

minilaprotomy, laparoscopic tubectomy, and provision of beds for post-partum tubectomy cases under the All India Hospital Post Partum Programme. Yet, it cannot be denied that there have been an abnormal number of complications and fatalities following cases of tubectomy. The complication rate in the case of vaginal tubectomy was so high that it is no longer encouraged, nor does any acceptor desire this method. On the other hand, the government is trying to promote laparoscopic tubectomy on a large scale. Often, gynaecologists compete with each other for the maximum tubectomies performed in a day, further heightening the risks. In addition, an elaborate infrastructure as also heavy monetary investment are necessary to provide the facilities required for tubectomies. So far the government has never tried to promote vasectomy. All that is required is an intensive programme to educate couples about the procedure and dispel popular misconceptions about the consequences of vasectomy. They will have to be assured that the operation does not cause impotency and that the couple can continue to enjoy a normal life sexually. However, the mere promotion of vasectomies—or tubectomies—is not the whole story. More than 72 million sterilisations have been performed since 1956 in an effort to control the birth rate. Large sums of money have been invested and 90 per cent of the medical and paramedical staff are working towards persuading couples to accept sterilisation as a means of controlling family size. This not only results in other methods of contraception being relegated to the background, but a neglect of other health programmes and also a target-oriented approach which sees people more as numbers than human beings. By the end of the financial year, the staff of PHCs and sub-centres have been found to have exhausted their energy in meeting targets. Can we ever hope to make this a people's programme without first changing the approach? Despite such large investments, as we have already mentioned, there has been little impact on the birth rate. Perhaps the reasons lie beyond the area of family planning. Several studies have shown that female literacy and age at marriage have a significant role to play in lowering the birth rate. Table 16 illustrates the relationship between the birth rate and other socio-economic factors.

The couple protection rate (CPR), it is observed, cannot be correlated with the crude birth rate, as expected. However, high female literacy and higher age at marriage for girls have a definite positive impact on the CBR. Better economic conditions—which necessarily lower the infant mortality rate—can also help control the birth rate.

Thus, although these aspects cannot be over-emphasised, there is an urgent need to raise female literacy and encourage marriage at a later, *appropriate* age. By engaging teenaged girls in other activities—education or income generation—there will be a resulting beneficial

effect on the age at marriage, the economic condition of the people, and the infant mortality rate.

Table 16

States	CPR (1988)	CBR (1988)	IMR (1988)	Female literacy rate (1981)	Female age at marriage (1981) in years	Population below the poverty line (83-84)
	%			%		%
Bihar	22.9	37.3	97	13.62	16.55	49.5
Haryana	56.4	33.8	90	22.27	17.84	15.6
Kerala	46.4	20.3	28	65.73	21.82	26.8
Madhya Pradesh	36.2	37.0	121	15.53	16.56	46.2
Rajasthan	27.9	33.3	103	11.42	16.10	34.3
Maharashtra	54.7	29.4	68	34.79	18.77	34.9
Tamil Nadu	52.6	22.7	74	34.99	20.25	39.6
Uttar Pradesh	28.8	37.1	124	14.04	16.71	45.3

Source: Year Book 1988-89, Family Welfare Programme in India, Ministry of Health and Family Welfare, Government of India.

According to the 1991 Census, female literacy is still abysmally low. Table 17 shows that not even one-third of the female population aged 7 and above is literate in 256 of the 452 districts in our country (as on 1 March 1991). In 52 districts the female literacy rate (FLR) is even lower than 15 per cent, and in 126 districts it is between 15 and 25 per cent. Particularly deplorable is the situation in Bihar, Rajasthan, Uttar Pradesh, Madhya Pradesh, Orissa and Andhra Pradesh, where 41 out of 42 districts, all the 27 districts, 57 out of 63, 28 out of 45, eight out of 13, and 19 out of 23 districts, respectively, have an FLR below 33 per cent. This, despite the fact that our Constitution states that within 10 years of its adoption elementary education will be provided to all the citizens of India, and despite repeated assurances for change by the leaders of our country. It is undoubtedly an unpardonable lapse on the part of programme implementors, executives and politicians, a lapse which must be addressed as urgently as possible if we hope to see a declining birth rate.

Recommendations

The following is an attempt to highlight certain areas of concern which, if pursued sincerely, could lead to the desired goal.

Political will at all levels and the active involvement of local public representatives and other political figures could help the programme. A welcome step in this direction was taken by the Planning Commission which proposed a special meeting of the National Development Council to discuss and evolve ways of tackling the population problem. A Cabinet Committee headed by the Prime Minister could periodically review the programme and provide necessary directions for its successful implementation. At the administrative level, a

Table 17

States/UTs with Number of Total Districts and Number of Districts with Female Literacy Rate below 33 Per cent

S. No.	Name of the states/UT	No. of districts	Female literacy rate (FLR)			No. of districts with FLR > 33
			Below 15%	15-25%	25-33%	
1.	Andhra Pradesh	23	NIL	12	7	19
2.	Arunachal Pradesh	11	2	4	5	11
3.	Assam	23	NIL	1	10	11
4.	Bihar	42	16	22	3	41
5.	Goa	2	NIL	NIL	NIL	NIL
6.	Gujarat	19	NIL	2	1	3
7.	Haryana	16	NIL	2	6	8
8.	Himachal Pradesh	12	NIL	1	3	4
9.	Karnataka	20	NIL	3	6	9
10.	Kerala	14	NIL	NIL	NIL	NIL
11.	Madhya Pradesh	45	7	17	4	28
12.	Maharashtra	30	NIL	4	3	7
13.	Manipur	8	NIL	1	2	3
14.	Meghalaya	5	DNA	DNA	DNA	DNA
15.	Mizoram	3	NIL	NIL	NIL	NIL
16.	Nagaland	7	NIL	1	NIL	1
17.	Orissa	13	2	4	2	8
18.	Punjab	12	NIL	NIL	3	3
19.	Rajasthan	27	16	10	1	27
20.	Sikkim	4	NIL	NIL	1	1
21.	Tamil Nadu	21	NIL	NIL	1	1
22.	Tripura	3	NIL	NIL	1	1
23.	Uttar Pradesh	63	11	35	11	57
24.	West Bengal	17	NIL	4	8	12
25.	Andaman and Nicobar Islands	2	NIL	NIL	NIL	NIL
26.	Chandigarh	1	NIL	NIL	NIL	NIL
27.	Dadar and Nagar Haveli	1	NIL	NIL	1	1
28.	Daman, Diu	2	NIL	NIL	NIL	NIL
29.	Delhi	1	NIL	NIL	NIL	NIL
30.	Lakshadweep	1	NIL	NIL	NIL	NIL
31.	Pondicherry	4	NIL	NIL	NIL	NIL
	INDIA	452	54	123	79	256

DNA: Data not available.

Source: Census 1991 figures are from Ashish Bose, Demographic Diversity of India, 1991, New Delhi: B. R. Publishing Co.

Hand in hand with improving female literacy, emphasis should be placed on enhancing the status of women also.

Committee headed by the Cabinet Secretary could monitor the programme to help intersectoral linkages. Secretaries of the Departments of Health, Family Welfare, Education, Women and Child Development, Rural Development, and other related departments, could be

its members.

Similarly, the Chief Ministers of all the state governments should review the population control programme every month or at a bimonthly meeting and issue suitable instructions to the respective departments. The Chief Secretaries of the states should be given the overall responsibility to review and monitor the programme every month and establish effective intersectoral cooperation leading to population control. The Chief Secretary of a state, under the guidance of the Chief Minister, will be able to show results.

In the 1970s, poverty and its eradication were given priority. Even today, a significant proportion of our population still lives below the poverty line and is illiterate. It is only natural that for the poor in India, who constitute the bulk of the population, basic needs are the primary concern. The eradication of poverty then has to be taken up on a war footing. For, it is only when people are able to feed their children, and themselves, can they think of sending their children to school. If poverty persists, illiteracy, and with it several other social ills, will persist. At the time the Constitution was framed, free elementary education was regarded as the panacea to all our ills. How far has that been achieved?

The literacy level amongst women must be improved and enhanced. Together with improving female literacy, emphasis should be placed on enhancing the status of women. Teenaged girls should be the focus of a special programme which should encompass not only nutrition, health and sex education, but also income-generating schemes which together would go a long way towards encouraging marriage at a later, more appropriate age. It is this group that constitutes the prime potential acceptors of contraceptives. Concrete action is called for to ensure greater autonomy for women, and child survival and growth. This can be achieved through better legislation to protect their interests, increased education and employment opportunities, better health care delivery, better school health coverage and more stringent application of child labour laws.



Another important group is that of the aged. There is a need to introduce a scheme of social security for the aged to free them from dependence on their sons. This might encourage young couples to accept a small family norm more easily, as also have some impact on their preference for sons.

What would perhaps be the best assurance for people and help them accept the small family norm is an increase in the child survival rate. An infant and child mortality rate of over 100 per 1,000 live births in some states can hardly be considered reassuring. Although family welfare is supposed to encompass the crucial component of maternal and child health care services, undue emphasis on the target approach has relegated the MCH component to the background, with little integration between the two. For instance, the only criterion for judging the performance of the health functionary is the number of sterilisation cases brought in by him or her. Improving MCH—ensuring proper nutrition of the pregnant mother and the infant, proper immunisation coverage and antenatal care—will automatically benefit survival and fertility behaviour.

It is now widely acknowledged that the provision of quality health services to the people is the key to the success of the programme. It is equally true that the quality of services provided by the Department of Health and Family Welfare remains substandard and the health personnel are far from motivated. Concerted efforts have to be made to improve the qualitative aspects of the health services at the peripheral level. Training of staff, better supervision and proper guidance at all levels will improve the situation. Better training facilities must be provided for the staff at all levels and reorientation courses held periodically. Monitoring and proper supervision of the field staff must take place continuously, at all levels and in all regions. This can only be achieved through a genuine concern for the needs of the people in each state. A single management strategy, without any concern for regional variations, is bound to fail.

An integral part of better quality services is the coverage of eligible couples with a choice of various contraceptive methods. Special care should be taken to provide contraceptive coverage to newly-married couples, and couples with one or two children. For sterilisation and IUD acceptors, safe surgical procedures and follow-up are imperative. Males rather than females should be the targets for terminal methods of conception control for the reasons already mentioned—it is a simpler and safer method as well as cost-effective.

In all this, the media has a crucial role to play. Not only do media activities have to be expanded, they need to be made more innovative and realistic in order to reach the message to the layperson. To take one instance, ours is a strongly patriarchal society which places a great deal of emphasis on sons. Although this is an unfortunate fact and every attempt must be made to change it, it is fruitless for our media to simply state that girls are as

good as boys. The media will have to take the people into confidence before launching any programme.

Some agencies and departments are reluctant to dabble in family planning activities with the traumatic memories of the 1970s still vivid. A fresh effort must be made to devise humane and participatory strategies to make true 'family welfare' a reality.

Governmental efforts alone cannot substantially lower the birth rate and make the family welfare programme a people's programme. To this end, it would be useful to involve the vast and as yet untapped agents of social transformation who work at the grassroots level, and who have, over the years, earned the trust of the people. These include NGOs, social activists, trade unions and agricultural labour unions outside the main political arena. NGOs will have to be encouraged and involved on a wider scale in the development programme, providing financial help on a suitable matching basis. The area of their activities should be extended to the rural areas, especially tribal, hill and other remote areas.

This leads us to the important area of community participation—i.e., the people should look upon the programme as their own. This is essential for the success of the family planning programme. In order to do this, the people, particularly women, must be involved in the programme at each step, must be made aware of their rights and the services available. It is not enough to create an infrastructure but to ensure that it reaches the people. Herein lies the special role of the media and NGOs.

Youth forces and *mahila mandals* should be mobilised to contribute to the programme. The youth are future parents and will be heads of families during the first decade of the next century which will be a crucial period. Hence, their training and mobilisation from now will be extremely helpful.

There are over five lakh qualified practitioners of indigenous systems of medicine and homoeopathy who have practically no role at all in this programme at present. In addition, there are several registered medical practitioners (RMPs) who also have no role to play and are in fact looked down upon by many as 'quacks'. Yet, these very practitioners have the trust and support of the communities they serve, and can be involved as partners in making this a people's programme by first giving them some training: if they are involved in the national health programmes, in particular the family welfare programme, they could play an important role in educating the local people and in motivating them to accept the small family norm.

In several tribal and rural areas in India, people use locally available herbs to avoid pregnancy. Several studies have shown medicinal plants to be effective contraceptives. As the local people have tremendous faith in this system, investment in further research in this area could go a long way in redressing the population problem.

Public and private sector companies should also be

mobilised and encouraged to participate in the family welfare programme. By providing incentives and social services for their employees and families, they could play a significant role in propagating the small family norm.

Staffing patterns within the family welfare programme need to be altered or modified wherever required. The family welfare staff must be brought into the mainstream by giving them a confirmed status and providing them with promotional avenues. Only then can they be expected to function as dedicated workers. At the peripheral level too, staff should be posted according to local needs and conditions. Instead of a set posting of one male and one female field worker for every 5,000/3,000 population, states should be allowed

to make adjustments according to the needs and the availability of staff. The focus should be on states with poor performance and innovative schemes should be devised to improve the productivity of the workers in these states.

There should also be a system to train doctors prior to their placement in order to orient them to the needs and the requirements of the local population. As s/he will be the leader of the health team of the area, s/he will have to be committed and motivated.

Primary health centres should be strengthened, more auxiliary nurse midwives need to be trained, and the role of traditional birth attendants needs to be simplified. Proper selection procedures are also essential. The

Box 7

THE GARHWAL DIARY

Should there be a family welfare programme in Garhwal? This was the question we were forced to put to ourselves during our *padyatra* through some of the most inhospitable terrain of the mountainous Garhwal region of Uttar Pradesh. We undertook the trip primarily to understand the specific problems of the area which manifest themselves by adversely affecting the health status of the people.

Trudging through the villages, meeting the poverty-stricken local people and government functionaries, we realised that the government is according the highest priority to the family planning programme. This concern could be uniformly discerned at almost every level of officialdom—from the Chief Medical Officer to the Class IV employees of the health department.

The goal of bringing health to all by the year 2000 envisages, besides a family planning programme, a whole package of essential prerequisites which include mother and child care, immunisation, nutrition, life-saving drugs, safe drinking water, clean environment, control of epidemics and health education. What then is the cause for the bureaucracy's obsession with family planning?

Government health workers informed us that their success in achieving sterilisation targets saves them from questions pertaining to other activities like field visits, immunisation, etc. Requesting anonymity, many doctors told us that they are ridiculed if they attend to 100 patients a day—a cause serious enough for blocked promotions or punishment postings. But if they attain the family welfare targets, they are lauded with commendation certificates and other rewards. The villagers confirmed this. They claimed that the government health personnel visit the villages only in search of likely family planning cases. Some senior doctors of Garhwal reluctantly confessed that their knowledge and skills had been reduced to meeting the exigencies of the family welfare programme: 'We are gradually getting out of touch with our area of specialisation. The only instrument that we recognise now is the laparoscope.' Although an exaggeration, it does indicate the extent of despair that pervades the health department itself.

This brings us back to the basic question—what has this high-priority programme, which enjoys official attention and financial sanction, really achieved? Our queries brought home the fact that not merely the health department, but the revenue department, planning department, block development officials, etc., are also involved in the promotion of the programme. Thus, it is not uncommon to find one person being chased by four officials to undergo the sterilisation operation. What follows borders on the ridiculous. If the health depart-

ment official offers Rs 1,000, the *patwari* offers one *bigha* of land, and the block functionary promises a government grant. The poor person is at a loss trying to determine who he should accompany to the clinic or the camp. The prospective 'case' is overwhelmed by his newly-found importance. Whoever pays the highest deserves the 'case'. The ensuing rivalry goes beyond the target baiting. The cases forwarded by other departments are generally neglected by the health department at the time of the operation or during post-operation care. A number of health workers complained that a major share of their salary goes towards 'hunting' cases or baiting them.

Some doctors and intellectuals of Garhwal suggested during the course of our conversations that the tubectomy targets should either be lowered or totally struck off. About 75 per cent of the men migrate to other places in search of employment and the remaining are either too young or too old. In this scenario, setting targets and trying to achieve them becomes an exercise in futility.

Forced to report the achievement of targets, the government functionaries resort to operations and statistics which exist only on paper. We met many people who had been sterilised not once but four times! We met some aged people who had been operated at the age of 60! We even met some Nepalis who had been operated as Indian citizens for the benefit of the records. One such Nepali, Tej Bahadur, told us that his name had been entered in the register as Tej Singh and his place of work was shown as his permanent address to allay any suspicion. Is it not strange that our government is spending money, the benefit of which is being enjoyed by the Government of Nepal?

This situation raises several questions. Should the family welfare programme, which enjoys the highest priority on the government agenda, be allowed to continue in its present form and structure? Or, should it be revised to check the inherent contradictions that emerge from the focus on targets alone? Should the family planning programme be propagated at the expense of other health activities? And, if not, how important should the latter be? Can we really achieve health for all on the basis of the existing programme? Is the family planning programme being assessed realistically?

In today's context, do we need to seek answers to these questions from within the three angles of the red triangle or do we need to look at the problem from a fourth dimension?

Source: Extract from Joseph M. Singh's tour report. J.M. Singh is at the Dehradun office of the Uttar Pradesh Voluntary Health Association.

Village Health Guide scheme must be modified and closer links established between the village health guides and the health structure. The recurrent expenditure on this scheme must be shared by the centre and the states, and the honorarium given to VHGs enhanced.

The financial outlay on family welfare also needs to be increased as a large part of this goes towards salaries and other infrastructure. A certain amount must be transferred to the non-plan component.

This brings us to the role of the states. Although the states implement the family welfare programme, funding is the responsibility of the centre. This has resulted in a lack of commitment, lack of communication and inefficient management. If the states are made to share a part of the funding it might make them more answerable to the people. It might also curtail the emphasis on targets and their achievement which seems to be the sole criterion for assessing progress, exercising control and gauging the proper use of central funds.

Although originally meant to be an index of family planning goals, target achievement is now associated with large-scale corruption and coercion. Targets should not become an end in themselves—as we have seen, this too has not brought about a significant decline in the birth rate. This area needs a great deal of rethinking, for, in needlessly chasing targets, we are neglecting to create an environment conducive for eventually attaining a lower birth rate. As a trial measure the states may be requested to fix their own target to achieve the desired birth rate within the specified time frame.

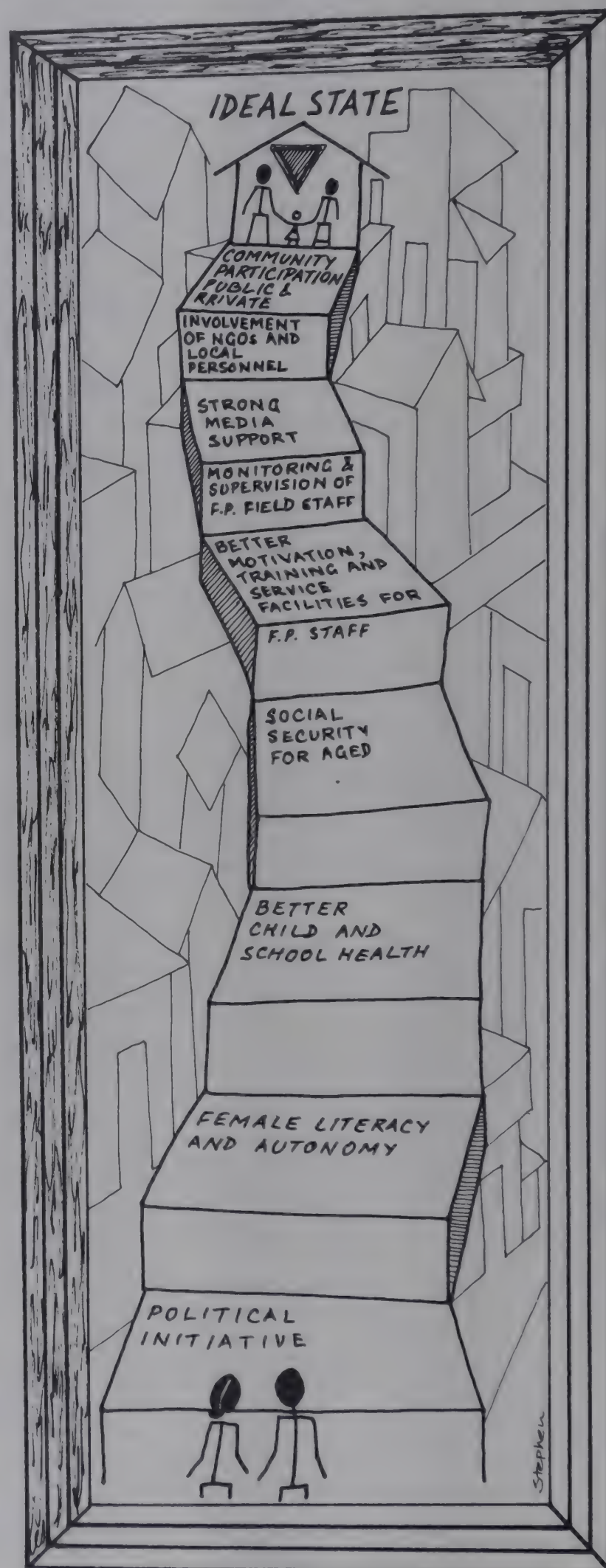
Why can we not learn from our past achievements? The eradication of small pox has been the single most important achievement of medical and health departments all over the country. The key to the success was a detailed, foolproof operational plan of action, decentralisation of financial control, flexibility of expenditure, and perfect monitoring. Why then can such an action plan not be formulated to mobilise the staff and the people to be educated to accept a small family?

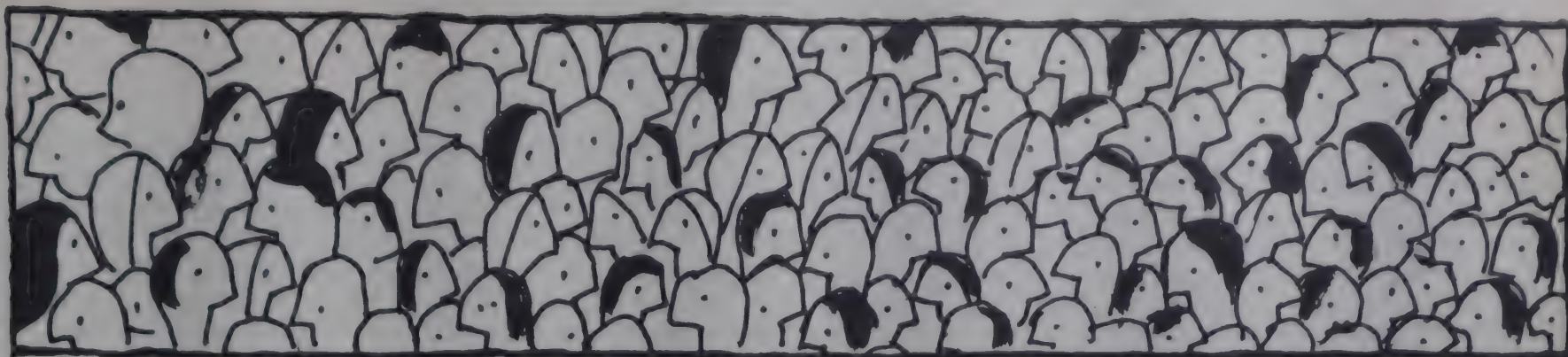
Critics believe that little has been achieved in the field of family planning, apart from crores of rupees having been spent. Although this is an uncharitable remark, certainly much more could have been achieved.

We need not send our health administrators or doctors to foreign countries to learn the procedures to implement the family welfare programmes. In this country, several states are successfully implementing the programme and achieving the desired results. There are a fair number of NGOs doing laudable work in this field. The health administrators and doctors should use these examples to learn. Visits to foreign countries could be offered as an incentive to sincere and good workers likely to show results. State awards and special incentives for state and central government employees should be abolished.

There is no doubt that we cannot afford to be complacent. Clearly, to avoid a disastrous beginning in the 21st century, innovative steps have to be taken and

an investment in true welfare measures will reap greater dividends. It is hoped that the measures outlined in the Eighth Plan document will not remain on paper alone.





Box 8

COMPREHENSIVE LABOUR WELFARE SCHEME OF THE UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA

The plantation districts of the Western Ghats in Tamil Nadu, Kerala and Karnataka have witnessed a virtual health revolution among plantations subscribing to the Comprehensive Labour Welfare Scheme (CLWS) of the United Planters' Association of Southern India (UPASI), if statistics are any indication.

Public health targets which are slated for achievement elsewhere in India by 2000 AD have already been realised here. The crude birth rate fell from 40 per thousand in 1971 to 22 per thousand in 1984. The crude death rate in the same period dropped from 9 to 3.5 per thousand. Infant mortality declined steeply from 119 per thousand live births in 1971 to 48 per thousand in 1984. Contraceptive prevalence (mainly tubectomy) among eligible couples increased substantially from a mere 9 per cent in 1971 to 49 per cent in 1984. Another interesting feature is the acceptance of sterilisation by mothers who have two female children or a single male child.

UPASI's programme is even more remarkable if we consider that population density, pressure on cultivable land, and all other constraints on life's amenities which are typical of less affluent urban and rural sectors in India, are in a sense absent or minimally present in this area. As a result, the incentive or actual basis for perceiving a need to reduce family size in order to improve the total quality of life is missing.

Being an organised sector, the plantation labour are assured of all basic amenities like health infrastructure and transportation which are the mainstay of the curative services. Instead, promotive and preventive health is focused upon to bring about an attitudinal change in the health habits and thinking of the people and to enhance their utilisation of health care services. This has been the main strength of a system created by the programme which incorporates the needs of the people for all times to come. UPASI's experiment shows that a small family norm and a higher health standard are related, and fostered by positive health attitudes developed among the people and a sustained demand for services from within.

CLWS seeks to improve the level of well-being of plantation workers through an integrated health and family welfare programme. The acceptance of family welfare planning by the people improves when it is integrated with primary health care. CLWS incorporates within the ambit of its activities, antenatal and post-natal attention, institutional or home deliveries by trained midwives, child health programmes which ensure healthy growth through periodic weighing, nutritional support, immunisation and preventive care.

An understanding of the situation in the area has resulted in substantive changes in the coverage and utilisation of health services. It has come to include aspects usually not associated with traditional health care, like the provision of clean drinking water, sanitation and smokeless cooking stoves to ensure environmental health.

The plantation labour welfare activities of UPASI have been based on the premise that any effort at overall improvement in the lifestyles of people has to involve women. As the plantation sector involves more women than men, any improvement in the woman worker's health and well-being not only helps to alter the quality of life of her family, but also improves her output at work.

Basing its health action on community awareness, education and acceptance, CLWS has utilised the innovative presence of a community-based link worker since 1977, who is the cornerstone of the strategy of delivery of health care. Adequately backed by referral and curative health services, the link worker has performed effectively as the human link in the health administration chain. The presence of a health resource person in the plantation colony, providing health information and education at the community worker's doorstep, acting at the same time as a vital two-way link between the health care service and the people, helped to considerably improve the effectiveness of the programme. The majority of the link workers are women as they are better able to conscientise and bring other women into the fold of the service delivery programmes in health and family welfare.

The link worker is selected through careful screening and selection of the more enthusiastic people from within the community. They are equipped with the necessary knowledge and skills through training—the motivation being the opportunity and honour to serve the people rather than monetary compensation. Drawing support and legitimacy from the management, the link workers have grown in stature to assume a leadership role in fields other than health—testifying to the interdependence of health and development interventions and outcomes.

The acceptance, support and involvement of the management has been indispensable to the success of an employee's health and welfare programme. So also the cooperation between the management and the medical department. Where the two do not perceive worker health to be their common priority, the efficacy of the programme suffers. Therefore, a reorientation of medical and managerial manpower is integral to the programme. The plantation workers are also trained to make them better aware of why they should be healthy and how their own health is integrally linked to a healthy neighbourhood and environment.

The health and welfare of employees are convergent with the employer's interest. Better health leads to higher productivity which justifies health and welfare outlays to be viewed as an investment rather than consumption expenditure. The management of 40 per cent of the member plantations of UPASI are implementing CLWS in the accepted belief that health is indispensable to the productive performance of workers.

STREEHITKARINI

When the methods to limit the number of children to be born are insensitive to the living conditions and social norms of the target group, there is bound to be resentment and resistance to the family welfare programme. This is particularly true of the government programmes whose success is determined by the number of sterilisation operations. In effect, the programme boomerangs and despite the passage of time, solutions to the problem are not forthcoming. But there have been instances where family welfare programmes have succeeded. The success stories are characterised by an approach to bring about development in a broader perspective of a marked target group which also allows for better understanding of the people and their lifestyles. One such experience has been that of Streehitkarini, a Bombay-based organisation, which endeavours to promote the health and welfare of women living in the slums.

Urban health services, even in metropolitan cities, do not reach large pockets of poor people, many of whom are rural migrants. With low levels of health awareness and tensions and difficulties imposed by a newly-adopted urban way of life, they are especially prone to the vicious circle of ill-health and abysmal poverty. Streehitkarini functions in an area crowded with shanties and dilapidated tenements and polluted by the effluents from the textile mills located in the vicinity. It is essentially a change-inducing and problem-solving intermediary, which motivates and educates instead of dispensing pills to cure ailments or to control births.

Streehitkarini sees family planning as imperative to make women independent, responsible and self-reliant and thereby healthy. However, it can be implemented only in tandem with programmes for maternal and child health. Family planning, unlike the professed approach of the government departments, is perceived not as an end but as a means to afford greater socio-economic mobility and healthy living. Basing their strategy on the assumption that an effective urban health programme must begin with women, the organisation, through a motivated band of volunteers and professionals, initiated activities to inculcate a spirit of enterprise and self-confidence among women.

Streehitkarini realised that health is not perceived as a high priority requirement by the poor and therefore, health programmes in isolation from other activities such as education, income-generation, saving and de-addiction are unlikely to be effective. Interaction with other NGOs and government agencies is critical for providing a wide range of services and activities. And, for long-term and consistent results, the use of local women workers with the 'feel' for the socio-economic environment is vital.

To begin with, Streehitkarini set up a maternity and child health clinic in the mid-1960s. Besides the treatment of common ailments, there were also services for family planning, and significantly, the treatment of infertility. The latter provision contributed in giving the family planning programmes credibility and a positive image: that it was responding to their individual needs and not campaigning. Gradually, the clinic started treating other problems like tuberculosis, alcoholism, leprosy and STDs.

By the late 1960s, the Maharashtra government had stepped up its sterilisation programme through monetary incentives. The slum dwellers initially displayed lack of trust and at times sheer hostility, perceiving Streehitkarini volunteers to be the seekers of votes or family planning cases. Prejudice, fear and suspicion were overcome by the clinic which sought the trust of the people it had set out to serve.

Initially, Streehitkarini chose those women as beneficiaries of the programme who showed some initiative as health workers

and were motivated by the efficacy of family planning in their own personal lives. Attitudes rather than qualifications were important. Married, mature and community-oriented women, capable of multipurpose activity, were chosen as local community health workers. Today they form the backbone of Streehitkarini. These field workers are imparted short formal training, followed by problem-oriented in-service training. Regular meetings help build excellent rapport among the staff on the basis of mutual sharing of experiences and cooperative learning and skill development.

The daily clinic is the nucleus of all health activities. It caters to the routine health problems of women and children and offers ante-natal services. Post-natal care is provided through home visits by the health workers. Serious cases are referred to the municipal hospitals. The clinic provides women an opportunity to exchange ideas in an environment other than their homes. As a matter of principle, there is a nominal charge for the services provided, but no one is turned away because of their inability to pay. Family planning services are basically free, but users normally make a small contribution. Also part of the health package are the supplementary feeding programme and immunisation.

Home visits by the health workers are important as their work concerns motivation, education and referral rather than delivery of health care, because clinics in Bombay are within easy reach. Nor do they conduct deliveries, 90 per cent of which are now hospital-based. They conduct non-formal and adult education programmes, advise about saving schemes and income-generating activities, liaise with the government and other agencies in resolving domestic problems, and help vulnerable families to cope with the pressure of urban slum life.

By creating conditions conducive to the acceptance of the family planning component of the programme, Streehitkarini has been able to show impressive results. By 1984, about 72 per cent of eligible couples in the original project area of 50,000 people were using contraceptives. About half the eligible women in the area had been sterilised. Since the liberalisation of the abortion law in 1972, services have been provided at the clinic and most women undergoing abortion subsequently accept some method of contraception.

IUD insertions were started in 1965 but had fallen into disrepute the following year. Streehitkarini persevered with the insertions, while ensuring thorough screening and after-care, unlike other family planning schemes. Today, it is the most popular spacing method, used by 7.6 per cent of eligible women. Pills are used by 3.5 per cent. Family planning for men proves difficult, partly because Streehitkarini is oriented towards women but also because of conservative male attitudes towards vasectomy. Condom and vasectomy acceptance rates are low: 2.9 per cent and 1.2 per cent, respectively.

Through its female education programme the organisation informs women about menstruation, human reproduction and childbirth to dispel traditional myths. Through group meetings, women are taught hygiene, nutrition, child care, family planning and the causes and consequences of disease. The content and technique of the programme is closely tailored to the immediate situation of the women to help them cope more effectively with the family, finance and environment.

Streehitkarini's motivated pragmatism, combined with the sensitivity to the human psyche, has given birth to a family planning programme which can boast of popular support and which does not treat its targets as numbers but as individuals who are not beyond reason.

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Health Education

Introduction

The aims of health education are best summarised in the report of the first expert committee on health education that met in Geneva in 1953:

The aim of health education is to help people to achieve health by their own actions and efforts. Health education begins, therefore, with the interest of people in improving their conditions of living, and aims at developing a sense of responsibility for their own health betterment as individuals, and as members of families, communities or governments.

Health is but one of the elements in the general welfare of the people, and health education is only one of the factors in improving health and social conditions. It is, however, an indispensable factor and should therefore be integrated with other social, economic, health, and educational efforts.

Health education is not a new concept in India: several ancient texts write of the principles of preventive and promotive health. Folklore on health has also existed for centuries. This, however, differs greatly from conventional health education. Traditionally, health education/information was propagated through face-to-face communication—formalised/institutional structures did not exist. Instead, the principles of health were interwoven with local cultural and religious practices.

The formalisation of health education came with the introduction of Western systems of medicine. Health education was recognised as a vital component of the health care delivery system in India's First Five-Year Plan in 1951. The initial step in providing preventive, promotive and curative health care to the rural populace was taken with the establishment of primary health centres as health posts. Of the seven functions attributed to these centres, health education was one. Every category of health worker was to educate the community on principles of health and disease. To become educators, however, these workers clearly needed training in health education. Health education thus forms a major part of the government's national health programme for disease eradication and control, which includes leprosy, malaria and tuberculosis. Immunisation and family planning are also part of this programme.

The Central Health Education Bureau (CHEB) was established in 1956 under the Ministry of Health, and is the apex body for health education and information services. Although attempts have been made to establish state and district level units, to date, out of 420 districts, units have been established in only 130. The CHEB provides guidelines for the organisational set-up and functioning of the state and district health education units. Media development, training, administration, behavioural research, field study demonstration and school health

divisions also exist at the state level. Training in health education for medical and paramedical staff is being offered at training institutions through a one-year diploma course. There are also several in-service training programmes for paramedical staff, those involved with the media, key trainers, nurses and health educators. At the community level health education is taught to village health guides through pre-service training programmes. In the area of family planning, health education efforts have been directed towards women, school children and eligible couples. There have been attempts to produce various health education materials and the mass media—the press, radio and TV—are being used to disseminate health messages. A Directorate of Audio-Visual Publicity, directly under the government, undertakes campaigns for health through press advertisements, posters, folders, brochures and exhibitions, both at the central and state levels.

Health Education for Health Action

During the 1970s, a new understanding of health education and health care was developing. For the first time debates on the differences between 'health care' and 'medical care' were taking place and the limits of 'hospital-based' and 'doctor-centred' health care in improving the health status of people were being recognised. There was a sense of enthusiasm and missionary zeal that prompted organisations like VHAI, CHAI, and numerous other institutions to propagate the concept of 'community health' and 'primary health care'. Several initiatives in alternative health care under dynamic and charismatic leaders were initiated in India, Bangladesh, the Philippines and Latin America, which concretely showed that significant changes in health care were possible with strategies and approaches based on 'awareness building', 'conscientisation' and 'empowerment', not merely 'information dissemination'. This change in perception took place as it became clear that 'information dissemination' did not necessarily result in attitudinal or behavioural changes.

The Alma Ata Charter of 1978 was a powerful document in that it clearly defined what health and health care really entailed. It was a powerful tool in the hands of health workers who were working towards social change and social justice in health care.

Ivan Illich's *Medical Nemesis* and David Werner's *Where There Is No Doctor*, for example, did not merely create ripples in the world of alternative thinking; they made people think, initiated processes of looking at society, health, ill-health and health care differently.

The rapid growth of powerful transnationals in pharmaceuticals, pesticides, liquor, tobacco, armaments, processed foods, and the baby foods industry was



associated with their increasing influence over the consumption patterns of people in the Third World who could neither afford the economic wastage nor the associated health hazards.

The following decade saw the emergence of the peace movement, the women's movement, the environmental movement and the holistic health movement in the West. In some countries, in Latin America, the Philippines and Mozambique, for instance, health work started becoming an integral part of the people's struggle for liberation from dictatorships and military juntas. The health movement in these countries highlighted some of the political and socio-economic aspects relating to health.

The health initiatives in India had a more developmental approach, and were directed towards improving the health status of the people: providing basic health services as well as increasing health awareness. Most early initiatives in alternative health care were taken by committed individuals and organisations such as Jamkhed, Deenbandhu, Pachod, Oddenchatram Ambilikai, Padhar



and Gandhigram, Seva Ashram and Anandvan. Their contribution towards bringing about a different understanding of health care has been significant, proving that alternative approaches in health care can work in certain areas, provided a particular social environment can be created.

Other papers in this volume have described at length the deplorable health status of our people. India's major public health problems still include environmental sanitation, communicable diseases and nutritional deficiency. Maintaining good health and preventing disease depends to a large extent on the way people live and the manner in which they use material resources and health services. Apart from other reasons—illiteracy, poverty, inaccessibility/unavailability of health services—many of our health problems are due to improper health practices. Thus, health initiatives should be geared towards providing basic health services, as well as health education, to increase awareness. One fact, however, is clear: positive changes in health-related behaviour have

come about only when educational messages and strategies have taken into account the link between the cause of ill-health and the socio-economic context.

The Role of Behaviour

Most of the world's major health problems and premature deaths are preventable through changes in human behaviour. Health administrators are now realising that the necessary know-how and technology are not enough: this has to be transformed into effective action at the community level.

Examining behaviour from a community's perspective is not easy. Medical training often distances health workers from how ordinary people think and feel; what might be perceived as irrational behaviour on the part of the community might actually have a sound, rational basis, determined by a person's or a community's own needs. Behaviour is thus determined largely by a particular society's understanding of life or practices, which naturally varies from society to society.

Health educationists often attempt to change traditional behavioural patterns considered harmful. These are usually related to nutrition, hygiene and sanitation. They tell people to eat better food, expecting them to pay heed, or advise a woman to keep her kitchen clean so that her family does not fall prey to diseases. These education messages rarely take into account indigenous health concerns or behaviour. Many concepts, including those relating to nutrition and hygiene, are not only deeply entrenched in the cultural lifestyle of a person, but also constrained by limited resources. While the health worker talks of 'hygiene', the villager talks of 'purity'. 'Hygiene' to the worker is regarded as a means of reducing risk to infection; 'purity' to the villager is seen as protection of his own house and body space from the intrusion of spirits. An understanding between the worker and the villager only arises when one tries to see the other's point of view.

An in-depth survey of the health beliefs and practices of 275 multi-caste families in two regions of south India revealed that when health workers based their advice on indigenous health concerns—by formulating a special diet for each patient, based on age and specific needs—the people opened up to advice and participated in a meaningful dialogue about nutrition. Such a dialogue, however, required the field worker to first familiarise himself with the local customs and traditions and acknowledge indigenous beliefs.

Changing behaviour is a complex process. Change in one area of life is linked to change in others, since cultural traits are interlinked. In India, especially, behaviour and beliefs are part of a wider belief system which includes culture, religion and traditional systems of medicine. A pregnant woman might not want to eat egg because she believes that hot and cold states of the body are created

by the intake of specific foods. The health worker's advice to eat one egg every day to fulfil her nutritional needs would probably conflict with her mother-in-law's views. Similarly, women are supposed to eat only after the men have finished eating. Where the food is limited, the likelihood of adequate food being left over for the woman is remote. Health workers believe this can easily be overcome by suggesting that the woman eat *along with* the menfolk. But, if a woman were to sit down to eat with her husband, it would signify her equality with him, challenging the deep-rooted social conviction that men have a higher status than women. Thus, most traditional women would reject this advice. Instead, messages that are structured to provide the woman *social support* for consuming greater quantities of food have been found to be effective. Where children are valued, drawing attention to the fact that a better maternal diet results in better quality and quantity of breast milk, and hence better child health, has been found to be effective.

Traditional beliefs are often sound and have been used to advantage in health education programmes. Focusing on the positive aspects of indigenous practices has also been found to be a good method of inducing a positive behavioural change.

Health workers often find themselves distanced from ordinary people and their lifestyles. Talking to members of a community regularly enables them to keep in touch with their thoughts and feelings, as also helps in discovering the cause of resistance to a health message. Viewing the health behaviour of a population as a measure of what a person *does* know rather than what the gaps are, has ensured greater success of health education messages. Well-meaning attempts to introduce new practices are often found to fail when they *challenge* local beliefs and practices. Messages that contain new information may not be welcome and are often perceived as a threat.

Health messages have worked best when they build upon local resources and practices and have minimum requirements in terms of *finances* and *time*. New practices are adopted when their benefits are concrete and vis-

ible, risks are low, and facilities and technology are available and affordable. Small-pox, for instance, provides a dramatic example of the large-scale acceptance of vaccination. The most effective form of health education takes into account the factors that influence a person to perform (or not perform) a behaviour. Defining the behaviour—specifying 'what' the behavior is, 'who' carries it out, and 'when'—is the beginning. This calls for specificity and precision. 'Hygiene', for instance, is too broad a term. It could mean washing of hands, certain precautions while preparing food, disposal of infant faeces, or clean storage of drinking water. A worker who observes and understands the exact reason for a particular behaviour by the community is seen to offer the most successful alternatives.

Communication

The most effective and appropriate communication strategies and the messages that need to be disseminated can only be decided after taking into account the cultural attitudes and behaviour patterns of the community. As



culture determines the educational methods that are acceptable and comprehensible to people, it also determines the methods to which people will respond. For example, visuals have different meanings for different cultural groups. A group of women near Pachod in Aurangabad were shown some drawings and asked to identify what they symbolised. The artist had represented a person by a face, with sticks for arms and legs. An eye had been drawn to explain ophthalmic infections. To the women, these visuals were a source of amusement and were perceived as entertaining: the eye was thought to be a fish by most women while a picture of a child in a cot was thought to be a cockroach by some! Thus, such attempts at communication, through methods that are alien to the people, can only fail.

Communication projects are framed after determining the best message and the most appropriate media to influence the intended audience. Message development involves, apart from observation of the community's attitudes, how to *appeal* to the audience. An audience/environment survey provides information on the problems facing the particular audience, who exactly is affected by the problem, and what is the best way to reach that audience. This helps in defining the problem clearly. For instance, when the incidence of diarrhoea is high in a particular area, a KAP (knowledge, attitude and practice) survey would identify the exact reason: is it because of poor hygienic habits, or because the drinking water is contaminated? Once this has been established, the next step is to determine whether or not the treatment is known. Do the members of the community know how to use oral rehydration therapy (ORT)? Has it been used successfully? Do the people use the health services available in the area? What is the audience's attitude towards adopting a new health behaviour or changing an existing practice? What are the barriers to adopting this behaviour: social, financial or others? Information such as this can be gathered only through group discussions, surveys, interviews, etc.

Health Messages

Messages that build on indigenous health concerns are found to be effective. For instance, health messages directed at pregnant women sometimes advocate *immunisation* (tetanus toxoid) and even iron supplements, on the grounds that these will help a woman to have a 'big' healthy baby. However, several women are frightened of having big babies as they are associated with difficult deliveries. It has been found that messages that focus on indigenous health concerns are effective: where tonics might be marketed as 'digestives' and tetanus toxoid as a 'blood purifier', where the focus is on traditional concepts of blood purity and heat in the body. Attention should be directed at the baby's strength and digestive capacity rather than the baby's size. Often,

appropriate social messages are framed best after conducting anthropological research and KAP surveys.

Research shows that short, simple messages containing only essential information work best, and, the more frequently they are repeated the more likely they are to be remembered. Specific messages that educate the viewer regarding what he or she should do to initiate a behavioural change are also effective.

Print Media

The usefulness of the print media has been found to be limited as only 39 per cent of India's population is literate; among women the rate is even lower, at 18 per cent. According to estimates, only about 7.1 per cent of the rural population—which forms the majority of India's population—is exposed to any form of print media—newspapers, pamphlets or booklets. The central and state governments, however, produce newspapers, books, journals, booklets, flipcharts, posters and flashcards in enormous numbers, and several million rupees are allotted annually to the Directorate of Audio-Visual Publications for the production of the same. The Ministry of Health and Family Welfare has a mailing list of over a million. The Directorate of Advertising and Visual Publicity (DAVP) within this Ministry continues to publicise family welfare messages.

Yet, most of the material produced does not reach the people for whom it is meant. The WHO's publications for lower level health workers and the general public are limited. Although UNICEF, too, brings out pamphlets and other print materials, these are inadequate in one way or another. Voluntary organisations such as VHAI (Delhi) and CHETNA (Ahmedabad), have, in the last decade, been bringing out a variety of publications aimed at a wide-ranging audience—from policy-makers to health workers.

A major reason for the paucity of material for the weakly literate and non-literate is the limited interaction between the producers of the materials and the health workers. The result is that the product is often irrelevant; the message wrongly directed.

Research has shown that the print media can be used effectively to raise *urban* health consciousness in a number of ways: a regular health column written by medical health professionals who have established contact with newspaper editors is one method. When public campaigns are endorsed through the press—just as the media coverage on the rational drug policy campaign—it helps create public awareness and, in this particular case, has even resulted in stalling the government's pro-industry proposals for several months. Had eminent members of the various committees appointed by the government supported the demands of the All India Drug Action Network, an initiative of VHAI, the movement would have been even more successful. The timely coverage of important health-related issues is

Box 1

VHAI'S ACTIVITIES IN HEALTH EDUCATION



VHAI's interest in health education and in creating an awareness regarding health started as soon as it became evident that conventional attitudes and methods of hospital administration favoured curative rather than preventive care. Thus, its emphasis shifted to health *promotion* and the



prevention of illness and disability, concentrating on community involvement. VHAI felt a need to strengthen the relationship between hospitals and the community so that they could both function as educational bodies, sharing their technical knowledge with health centres and community health workers. Thus, VHAI's attempts at promoting health education counted on the acquisition of new skills and knowledge of health personnel. Through its information centre, it succeeded in establishing and maintaining an efficient information system for all health personnel: this has involved systematically collecting and disseminating a variety of health-related information to diverse groups. A special feature of VHAI's information centre is the training workshops conducted to impart the technical skills needed to set up a documentation centre.

The essential function of this documentation centre is to remain vigilant and expose misinformation, as also to evolve a system of documentation which could provide a factual and unbiased picture of any event or situation. Several groups in the country have done commendable work in many areas—including health and development. Such activities are well documented, recommendations for improvements suggested,

and reasons for failures enumerated. This is done in regional languages and such documents are invaluable for educators, planners and policy-makers. VHAI has also started information cells in state voluntary health associations which concentrate on bringing out material in the local language and on subjects relevant and vital to the specific area.

To disseminate health information through the media, VHAI has set up exhibition stalls at various *melas* in different states. Apart from this, it has also arranged health exhibitions and the sale of its publications at events organised by other like-minded organisations.



In its publications, VHAI has attempted to cover all aspects of health development, linking general development issues with health care. The stress has been on simplifying messages, and making complex and technical knowledge easily comprehensible to different target audiences, from health workers and school-age children to project and development workers.

The earliest of VHAI's publications was *Health Care of Children under 5*, probably the first publication in the country to focus on the care of under-fives and promote the theory and practice of well-baby clinics. This same book also introduced the concept of growth charts. *Nursing Survey of India*, VHAI's second major publication, was a pioneering effort in that it moved away from doctors and hospitals and made a considerable impact on the subsequent planning of human resources in health care. The 'Better Care Series' was designed as pocket

books, and were so successful that they were translated into 17 Indian languages and recognised by UNESCO as the best supplementary reading material in Asia. *Teaching Village Health Workers—A Guide to the Process* is another unique publication as it addresses the need to select and train village health workers. That the book was evolved in one of the best known community health projects in the world—the Comprehensive Health Project in Jamkhed—has added to its relevance. *Where There is No Doctor* is considered the most important book on health care in the 20th century. Originally conceived in a farm workers' project in Plaxtala, Mexico, the international edition was adapted to the Indian situation by VHA, a book that has created marketing history and has been brought out in Hindi, Tamil, Telugu, Marathi, Oriya, Gujarati and Bengali. David Werner himself, the author of the original book, felt that of all the adaptations, the Indian one was the best. *Management Process in Health Care*, written jointly by the VHA health care management training team, and the report, *Alternate Approaches to Primary Health Care*, put together by the Indian Council of Medical Research and the Indian Council of Social



Parampara Samvardhana Samithi (LSPSS), a national network of NGOs for the promotion of traditional systems of medicine, has been involved in educating the public about various traditional medicines that are effective, easily available, and cost-effective.

To reinforce the child-centred health movement, and involve the community in bringing about self-reliance in health, VHA has focused a great deal on the school: its *school health programme* involves principals, teachers, children, health coordinators and project workers who interact with non-formal or formal establishments for the education of children.

Apart from these activities, VHA has developed a considerable amount of instructional material on health education for children as well as for programme planners and school teachers. The preparation and dissemination of information through appropriate government channels has been facilitated to reinforce VHA's efforts.

Science Research, and published by VHA, are also important documents which formed the background for the new health policy. In addition, VHA has brought out a number of flash cards, leaflets, slidesets, reprints, and, more recently, video films. Other publication activities include public education campaigns, highlighting issues such as essential drugs, infant feeding, pesticides, and women and health. *Health for the Millions*, originally a newsletter, has graduated into a bimonthly magazine covering important health and development issues. *Fellow Traveller*, a bimonthly newsletter strives to sensitise development groups on health and related issues, to initiate a collaborative effort in generating action. *Hamari chithi aap ke nam*, a bimonthly, multi-lingual newsletter aspires to put together the latest issues in health development and research. For school-age children, *Swasthya ke naye charan*, suggests possible activities that communities could undertake to better their health status. The list is endless.

Training programmes, designed and conducted at different levels, are another important feature of VHA's activities. Training for trainers is part of this activity. Another area where VHA has been active is in advocating traditional forms of medicine, which have been overshadowed since the advent of Western systems of medicine. VHA, along with the Lok Swasthya



effective when the article coincides with a topical problem. For instance, an article on jaundice, amoebiasis or other water-related infections coinciding with the onset of the monsoons will be immediately noticed by the public.

The print media is currently underutilised as a communication channel for highlighting health issues among the urban populace. One study has shown that as much as 44 per cent of the urban population reads a newspaper on a daily basis. This study also assessed whether this medium was being effectively utilised for health-related social advertising and evaluated whether the existing campaigns reflect national health priorities. Although there were a fair number of advertisements on mother and child health and cancer, communicable diseases (which are of great relevance in India) were not given much coverage. More than 60 per cent of the advertisements that appeared did not contain adequate information, thus making them ineffective. Research shows that social marketing campaigns the world over are effective only if they (a) create awareness of the product's existence, and (b) how it works, how it should be used, what it costs, etc. The study concluded that newspapers were not being used effectively for social advertising.

In fact, an analysis of a cross-section of advertisements appearing in the print and electronic media reveals the unfortunate fact that those involved in marketing fully understand and *exploit* these powerful media for aggressive sales promotion campaigns: be they for the promotion of tonics claimed to be 'herbal' or 'ayurvedic', for the promotion of 'unhealthy' baby foods, or the promotion of toxic killers—pesticides. Advertising proves one thing—it is the art (or science) of making people buy without knowing why, of creating an artificial demand for products about which the layperson knows nothing, which are often an unnecessary expense, usually harmful and of dubious efficiency. Even children are exposed to the unethical ways of profit-eyed manufacturers to the detriment of their health—two cases in point being monosodium glutamate-enriched noodles and BVO-based soft drinks.

Other areas of concern in this 'sell-age' include the advertisement of alcoholic drinks as mineral water or soda, the wide coverage given to leading cigarette manufacturers sponsoring national sports events, the continued advertising of baby foods in the print media, although there is a ban on their advertisement in the electronic media, and the increasing and aggressive promotion of high-priced junk foods low in nutritional value.

What India needs today is a strict and rational *media policy* which will examine the present irrational and unethical promotion of products. This is an essential step towards disseminating true health messages in order to educate our people.

Mass Media

There are several advantages of using the screen to draw attention to health issues. First, images are always remembered longer than verbal messages. Television, film and video attract attention, arouse emotions, present role models and educate while entertaining. Thus, they offer a growing potential for certain messages, for instance, those propagating family planning. Television continues to be utilised by the media units of the Ministry of Information and Broadcasting to project messages regarding the small family norm and maternal and child health. The number of programmes telecast by Doordarshan *kendras* during the first half of 1990 showed a substantial increase: apart from the one-minute family welfare TV spots at 9 pm on the national network, 7 pm health spots were also telecast. Among other health messages these programmes cover issues such as immunisation, age at marriage, and nutrition for the pregnant woman. The number of programmes broadcast by AIR which directly promote family welfare has also gone up significantly. In particular, the number of field-based programmes have increased. Surveys show that most people find family planning messages disseminated through the mass media acceptable. When village women were asked whether or not they considered it acceptable to listen to family planning education provided over the radio or television, 80 per cent of them answered in the affirmative; over half of them were able to watch television at least once a week. As films and TV often have among the audience such persons as village leaders and decision-makers, they provide the ideal medium to draw attention to important issues.

SITE (Satellite Instructional Television Experiment), a year-long programme launched by the Indian government in 1975, was aimed, apart from other issues, at improving village education, health, hygiene and nutrition, and at promoting family planning. This was the



Box 2

SOCIAL MARKETING OF PRIMARY HEALTH CARE

Over the last two decades a number of marketing professionals have begun pooling their expertise with social development workers to 'market' social change. Using traditional and innovative market planning strategies and management techniques, the individual's and society's well-being are sought to be enhanced.

A social product has to be positioned in the mind-set of the prospective consumer much in the same way that a consumer product is positioned in the market. However, social products are more complex than consumer products as they entail changes in accepted customary norms and values, and are thus difficult to sell, especially in rural and remote areas untouched by modern technology.

In the marketing of social products, which may be free as in the case of government-funded immunisation, the non-tangible costs assume importance. These could be the loss of wages or the inconvenience caused by availing of these services. This apart, the demands made on a hard-pressed health system must be taken into account—investment in the equipment, training and reorientation of the medical and paramedical staff to handle new approaches of the programme.

The channel of distribution is pivotal to any marketing strategy. The promotion strategy for a social marketing programme is no less important. Indeed, due to the budgetary constraints of most social development programmes, the social marketer has to be more innovative than his commercial counterpart. Besides the high production costs of these campaigns, programme managers lack the understanding of the importance of the mass media and expect free broadcast time and space over the state-controlled media which is not always available or effective.

A number of successful social marketing programmes in the developing world have demonstrated the potential of advertising in the social sector. Generally, a social advertisement seeks to change the audience's behavioural pattern by influencing their perception of a subject.

The credibility of a social message is dependent on its source. A doctor speaking about the benefits of breast feeding and immunisation of infants against diseases carries more weight than a non-qualified person saying the same thing.

Social marketing programmes are most effective when they are directed at the most needy groups (market segments) first, as this helps in efficient distribution of limited resources. Audience segmentation is essential for the formulation of appropriate strategies and messages. Extensive market research in the initial stages of the programme helps in market segmentation.

An appropriate media mix is then sought for the product. A social marketing programmer utilises a knowledge, attitude and practice (KAP) study of the health interventions he wants to introduce or strengthen in a region. The attitude of the people towards a particular health issue is important as it affects their practice towards the interventions advocated. It was found that a number of rural people in many parts of India refused to drink water from newly installed tubewells, although they did not object to its use for washing and other household chores. They believed that the tubewell water did not have 'strength', and they cited its 'different' taste to prove their point.

The folk media are increasingly being used to convey social messages directly to the target population. In 1985, UNICEF successfully experimented with the use of Rajasthani folk theatre to spread child survival and development (CSD) messages. A local art group of Udaipur produced and enacted a drama,

Griha Lakshmi, in the Mewari dialect for the tribals of Mewar Bagar in southern Rajasthan. The script was based on maternal and child health messages identified during a media orientation workshop. During the same period, another group took the same messages, but in the form of puppet plays, to the same region. Some of the villages were common to both the groups. The two types of programmes were not performed on the same days, the idea being to reinforce the messages after a time interval. Simultaneously, these messages were broadcast over the radio.

Social development workers have for long used interpersonal channels of communication to convey messages to their 'beneficiaries'. Many development practitioners hold that interpersonal communication is still the largest vehicle for effective dissemination of development messages in rural areas. The school teacher, the village health guide and the auxiliary nurse midwife, all play crucial roles in the social milieu of a village. Nonetheless, the modern mass media find favour with the marketing professionals even for social marketing.

A factor that distinguishes social marketing from other strategies directed towards individuals is the scale of intervention. Whereas most efforts in health education and promotion are based on families, neighbourhoods, villages or institutions, social marketing attempts to change individuals at the city, state, national and even international levels.

An effort which caught the popular imagination in India was a global fund-raising drive known as 'Sport Aid', jointly organised by the London-based Band Aid Trust and UNICEF in 1986. Aimed at the urban middle-class population, the promotion campaign was planned and executed in much the same manner as it would for a new consumer product. Special radio and television spots were aired on prime-time and advertisements in the print media were used to inform and mobilise respondents to sponsor the runners. Entertainment shows were organised with the proceeds going to charity. Besides the goodwill and popular participation, the total collection after expenses was more than Rs 65 lakhs!

Social marketing has grown in the wake of developments in mass communication. No one can claim that it is the best and only tool for health education and promotion. Like any change strategy it is only appropriate in certain circumstances, and even then it has its limitations. It is unsuitable where there are major structural barriers to change in individuals. Its pursuit in the face of poverty and discrimination becomes an exercise in victim-blaming. It is also inappropriate when the efforts and resources of the individual alone are inadequate to achieve the desired behaviour. Unfortunately, such impediments exist in large segments of both industrialised and developing nations.

In addition, factors such as competition and perceived efficacy impose natural limitations on coverage. Even where there is marginal competition among similar ideas or products, there is likely to be competition among basic needs, particularly in poor communities. Marketing based on centrally determined needs and professionally selected products may defeat the aim of encouraging community involvement and the adaptation of programmes to suit local cultural reality.

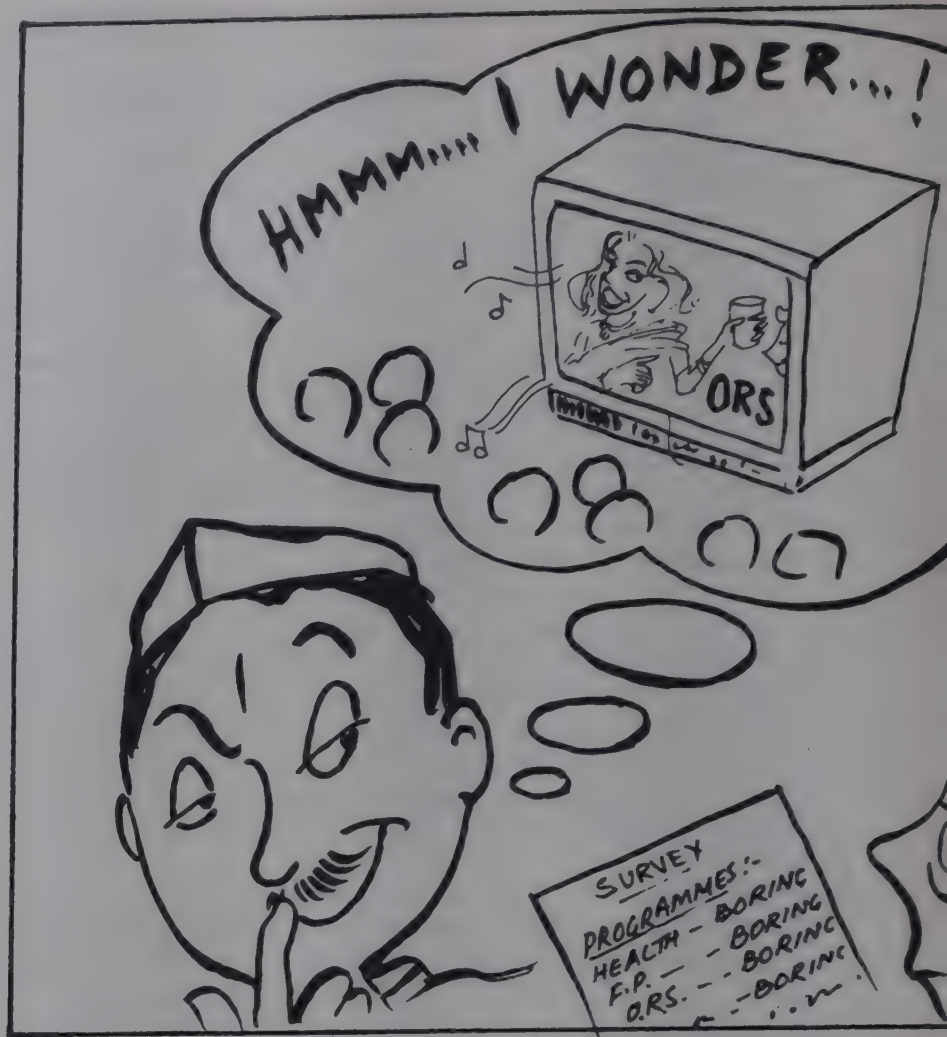
Social marketing is not an attempt to fill a vacuum with good ideas and products, although the zeal with which some professionals embrace it suggests that they feel the potential for adopting new ideas is unlimited. While the creation of awareness through social marketing may be a step in the right direction, other health education strategies should also be used so that people not only have the knowledge but also the will and social support needed to achieve health.

largest programme of its kind in the world, and was the first time the government had tried to produce a programme directed towards the rural masses. Various assessment studies were conducted before the programme was aired. Contrary to popular expectations, the experiment met with limited success. Different impact studies showed that although behaviour related to health, hygiene and nutrition improved, the villagers only adopted those innovations which involved the minimum expenditure. The major reason for the failure of SITE was that it was not area-specific. In order to make programmes for villages, some more than 1,000 km apart, and inhabited by people from diverse social and cultural backgrounds, there were only three base production centres (BPCs). The programmes did not account for the regional differences in the audience's attitudes or their specific problems.

The National Family Planning Programme has used, among other media, film and TV to promote messages. The 270 family planning films produced by the Ministry of Health and Family Welfare provide explanations for sterilisation and techniques for health care providers. These also brief the public on the advantages of a small family. The Central Health Education Bureau maintains a film library. About 750 films on different health topics for teaching and educational purposes are available on loan to agencies within and outside Delhi. On average, six to eight films on current health problems are produced each year by the CHEB in collaboration with the Films Division of the Ministry of Information and Broadcasting. These are viewed in theatres all over the country, although the effect of these is yet to be gauged.

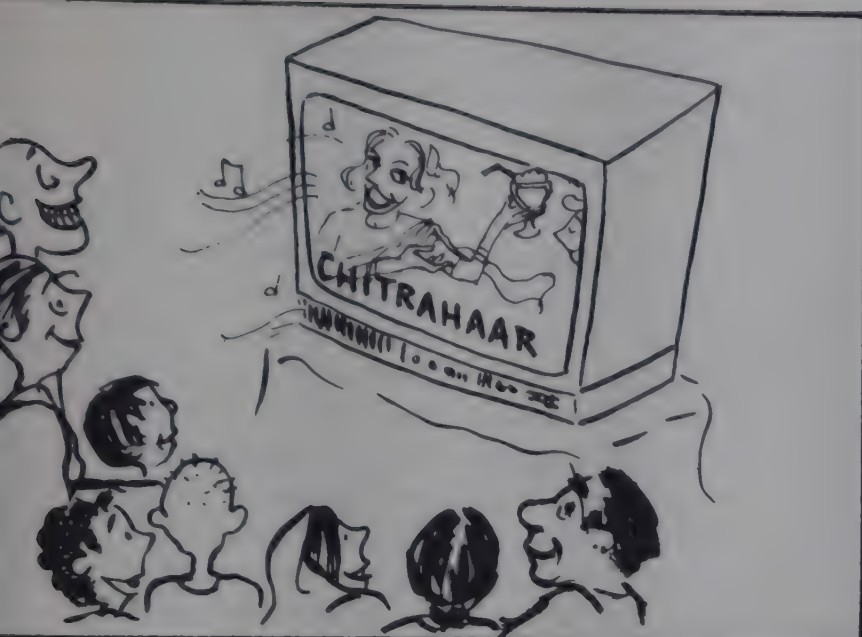
One major drawback of using television and film as message disseminators is that they are unidirectional and do not allow the viewers to participate. Many features and programmes are shown only once, and a one-time presentation of material does not allow for the viewers' differing levels of comprehension. Further, those most in need of health education—people in the rural areas and the urban poor—have the least access to television. Increasing satellite transmission will give the rural people better access to TV but only if they have receivers and electricity. As far as documentaries are concerned, two factors prevent their dissemination: the inadequate number of prints and the expense involved in preparing them.

To inform, educate and motivate people to change their health-related attitudes, the media division of the Department of Women and Child Development has been using the mass media extensively. Their popular radio programme, *Naya Savera*, is being broadcast in 11 languages through 29 commercial channels of All India Radio. These 10-minute episodes carry messages on women and child development, attitudes conducive to better parental care, and child health and nutrition. The public reaction to the 350 programmes broadcast this year has been encouraging. The media division has also



produced 15 radio spots in 12 languages for broadcast and use in field campaigns. These cover a wide range of topics from breast-feeding to the girl child. Apart from this, the division has produced films to increase message dissemination.

In 1956, a UNSECO-sponsored project of radio rural forums was started in 144 villages near Pune in Maharashtra. A forum consisted of 15 to 20 villagers who came together twice a week to tune in to a 30-minute radio programme featuring various aspects of development, such as agriculture, health, literacy and local self-government. Information was propagated either through the news, through a talk or interview with an expert in the field, or by a dramatisation or feedback from the listeners about an earlier programme. In contrast to villages which lacked this forum, the members of this radio listening group learned more about the various subjects as also participated in more action-related decisions. How many of these decisions were actually followed through, however, is not known. In 1984 another study was conducted by the Department of Agricultural Extension and Rural Sociology of the Tamil Nadu Agricultural University: 72.73 per cent of the population surveyed said they had changed their eating habits after listening to special health-related radio programmes. Other recent surveys in different parts of the country have yielded similar results. But one important question posed by researchers is: is it really the medium of radio that makes the difference, or is it the persuasive aspects of groups?



One major drawback of these forums is that since village officials have a role to play in the selection of the members, Harijans and women are often excluded. Thus, messages on family planning, child care and nutrition do not reach the target audience. Although various health messages are broadcast over the radio, most of these efforts have not been documented, and even fewer have been thoroughly evaluated for their impact. The radio has, and is still, being used to create awareness of family planning, although its value in providing technical information is limited by the nature of the medium.

Impact

Available studies of mass media impact on health-related behaviour find little or no effects, or reveal conflicting results. The reason for this is unclear. Poor quality of programmes or campaigns, and lack of reach are part of the reason. On the other hand, assessment is affected by the yardstick used: when in search of dramatic impact on behaviour, intermediate and less dramatic effects are overlooked.

Also, as mentioned earlier, the impact of the mass media is difficult to assess for methodological reasons: how does one gauge whether the observed changes, if any, are the result of the media and not a result of other influences? Irrelevant messages are another major reason for the failure of radio broadcasts to generate action. More obvious reasons are financial restraints—the inability to buy what is needed for the necessary change—and the lack of availability of the technology recommended in the broadcast. From the economic viewpoint, the radio appears to be the most suitable medium for health communication. However, it seems to work better with some personal contact like group meetings within radio forums. Besides, the radio has still not reached all of India's villages. Ultimately, the question is: although television, films and the radio are being used to communicate health messages, can these media really influence behaviour?

Box 3

THE 'ENTER-EDUCATE' CONCEPT

Studies have shown that well-researched mass media campaigns are the most successful at initiating behavioural changes when they are entertaining, informative, designed for a specific audience, and come through familiar communication channels.

Entertainment involves people; hence, a powerful film, or play, or even a dance, can encourage people to change their behaviour. This 'social learning', as it is called, is based on 'role-modelling', whereby a person observes other people and uses their behaviour as a model for his or her own behaviour. That sums up the concept of 'entertain and educate': using entertainment to propagate and make real an idea or behaviour. An enter-educate project should involve entertainers, producers, writers, directors, technicians and health professionals who work together to produce a programme capable of delivering powerful health messages while entertaining at the same time. A great advantage of such a project is that it is easier to find commercial support for effective health messages.

It was with this concept in mind that *Hum Log*, India's first long-running television soap opera was conceived. *Hum Log* promoted the ideas of equal status for women, family harmony, and the small family norm. More than 50 million people watched the 176 episodes of this programme—the largest-ever audience for a television programme in India. *Hum Log* was a tremendous success for many reasons: its characters seemed real to the viewers, who wrote more than 40,000 letters, most addressed to the characters rather than the actors and actresses. Also, it was broadcast during the time satellite transmission was expanding the coverage of television in India. Thus, television itself was new to people. The effectiveness of the programme, however, is questionable.

To evaluate its impact, 1,170 viewers were surveyed after the serial concluded. Five hundred letters were also analysed. These surveys showed that although the show was well-liked, its educational impact was minimal: only 8 per cent of the letters analysed mentioned some behavioural change. Encouraged by the show some women had sought help from women's welfare organisations and potential eye donors increased, but changes in family planning were not mentioned. It would be well worth the effort to analyse why the programme did not achieve what it set out to.

Research shows that although the mass media can create awareness and inform, interpersonal communication is more effective in changing behaviour. The advantage of this medium, however, lies in its cost-effectiveness. Although its impact on one individual might be minimal, its cumulative effect on the population may be significant because it reaches many more people. Obviously, recruiting, training, supervising and supporting a network of field health workers needed to communicate personally with a large population is rarely economically feasible. In spite of the major advantages of the mass media, particularly their ability to provide a wider, cheaper reach, planning a communication strategy for a population of 8.20 million people residing in 25 states and seven Union Territories with different religions, local customs and norms, languages and dialects, is not easy. Centrally-produced media program-

mes suffer from the major drawback of not taking into account the specific local needs of different communities.

Folk Media

In many rural societies oral traditions are strong and people respond to communication through puppets, drama, story-telling and music. Although these have been overlooked in many communication strategies, various reports indicate how successful this method has been in developing countries. In Nigeria, story-telling and parables are used; songs and painted wall murals in Uganda are extremely popular; and in the Caribbean, family planning and oral rehydration messages have been successfully implemented through the Calypso dance form. Research also shows that drama is one of the best means of communicating with both urban and rural societies.

In India, folk theatre, music and dance still survive—there is *bhavai* in Gujarat, *jatra* in Bengal, *burrakatha* in Andhra Pradesh and *therukoothu* in Tamil Nadu. Other examples of folk theatre include *tamasha*, *jhanki* and *nautanki*. There are also traditional forms of music—ballads, *harikathas*, *bhajans*, *kirtans*, *bhatialis*—and dance—*kathakali*, *bhangra*.

Folk media are developed according to the local skills available. A community has among its members storytellers, artists, poets, singers, writers, actors and puppeteers. An audience identifies with a member of their own community, who speaks the same language and shares their values and social characteristics.

Thus, when health education workers use the skills of the local people to design powerful media productions, they are well received. These productions are disseminated through the radio, television, touring drama groups or story/comic booklets. Folk or locally produced media are advantageous in that they involve almost no cost, they involve the community members directly so that they share responsibility for the development of the learning objectives, what information is relevant, and the needs to be communicated. The involvement of the entire community itself has a number of advantages: where health problems affect many or all members of the community, the cooperation of all is needed to solve the problem. Further, within a group setting people find the support and encouragement needed to promote and maintain healthy practices. Since people are at ease with folk media and understand and relate to them better, these are likely to be the most effective means of communicating messages.

Joachim Chacha, a puppet, is much in demand in Rajasthan. When a handpump is to be installed, he settles disputes about location and payment. Appealing to people with jokes and expressions rooted in the local culture, he conveys messages on the evils of moneylending and bureaucratic insensitivity. The creator of this puppet is always on the look out for local gossip and

disharmonies and uses them in the puppet's dialogue. This delights villagers, who are amazed at Chacha's awareness of their problems. He weaves real personalities around themes that have a direct bearing on the villagers' everyday lives. Messages that would take months to absorb through radio and television, if at all, are conveyed through a puppet show in one evening.

Attempts to use folk media have been many and varied. The song and drama divisions of the All India Radio, in the states, and of the Ministry of Health and Family Welfare all use local or folk media to carry messages. However, the programmes are organised by departmental troupes and registered private bodies whose success has been limited. First, the frequent visits that have to be made by these troupes to the rural areas are too expensive to maintain. Second, these urban artists speak the chaste literary form of the language rather than the dialects spoken by the local people. Thus, folk media are effective only when the members of the community themselves are involved.

In April 1990, All India Radio launched a weekly series of a 20-minute programme in Hindi in 28 episodes on Drug, Alcohol, Tobacco Education (DATE for short). Prepared in collaboration with the Indian Council for Medical Research, it was broadcast in 15 languages from almost all the stations. Episode zero, in the nature of a curtain-raiser, adopted the format of a rural *tamasha* in



which two performers, the traditional male *nat* and female *naati*, entertained an imaginary street corner crowd, telling them about the hazards of smoking, drinking and taking drugs. The dialogues and the songs were lively. The results of an impact survey to be conducted at six-month intervals are awaited.

The Adult Education Directorate of the Ministry of Education was the first to involve in a development programme entertainers who were members of the rural community. Thirty-six composers and singers of folk songs from the Himalayan region participated in a week-long workshop designed to involve them in adult

education programmes to motivate the adult non-literates in their communities. Many voluntary organisations too have involved traditional folk activities in their development programmes. CINI in West Bengal, for instance, has been successful with story-telling, using the traditional scrolls called *torja*. The story is printed on a scroll, which is then unrolled during the talk and song sessions. Other organisations as well have adopted role plays, dance, drama and song to deliver health and nutrition messages in an innovative manner. Some stories, for instance, have the mother-in-law as protagonist, discussing the merits of the nutrition of her daughter-in-law.

In Rajasthan, maternal and child messages have been successfully imparted by the Meera Kala Mandir troupe. Tribal women walked miles to see the programmes, evidence of how useful the folk media can be in educating people.

There are, of course, a number of problems with using traditional media. Both their form and language are specific to and entwined with a region, its culture and social structure. This makes them difficult to transport from one area to another. For instance, using puppets to educate a community in Kerala proved fruitless. Not being indigenous to that area, puppets were regarded merely as a source of entertainment, rather than carriers of health messages. Similarly, dancing and singing are not considered dignified by Rajasthani women, while puppets are acceptable.

As dance and puppetry are ancestral arts, professionals are often unwilling to impart their skills to others, thus breaking the chain. On the other hand, drama and song, which need minimal specialised training, should be improved and encouraged as a medium for imparting health messages.

Alternatives

Using modern technology in a traditional way has been more useful in communicating health messages than highly centralised, direct broadcasting. Utilising low-cost portable equipment encourages decentralisation of the media. Showing video films featuring members of a community discussing their health problems is one such method. As this can be geared to local needs and involves people directly, it is more successful at providing development support than highly centralised broadcast television. In one such experiment, rickshaw drivers in a village in Uttar Pradesh were taped explaining why they thought they met a bank's loan criteria. This was shown to the bank's managers, and their reactions too were recorded. The tape was then shown in the villages. This initiated a dialogue, at the end of which the loan was granted and repaid.

Similar successful experiments have been carried out in various parts of the country. Groups such as the Self-Employed Women's Association (SEWA), Ahmedabad,

have utilised video technology mainly to give members of a community self-confidence. The video tape recorder seems to be a viable alternative for the 16mm film. Similarly, audio tapes offer several advantages over the radio. The listeners have more control over the technology since the taped message can be replayed several times.

The potential of these methods, however, is yet to be fully tapped. The integrated use of folk and modern mass media also offers a new approach to communication. This has been interpreted by some as simply broadcasting/telecasting traditional theatre and songs over All India Radio and Doordarshan. In reality, an innovative way of combining media is by using one medium to actually *reinforce* or strengthen information propagated by another. For instance, take the case of a lecture-demonstration on antenatal care by a health worker. When the worker is a young, unmarried girl lecturing to an audience that consists of older, married and pregnant women, they listen to her sceptically. The worker discovers that the health messages she is trying to disseminate are being ignored by the village women. She then tunes in to a radio programme about women and child health. The women's interest is now aroused and they also take what the worker says much more seriously. In this situation, the radio reinforces or perhaps formalises the ideas expressed by the health worker.

Demonstration offers another useful method of communication. The advantages of recommended practices are clearly visible, and the techniques involved can be learned and practised. If satisfied users are involved this makes demonstrations even more effective. Members of a community who have been successful with oral rehydration or family planning, or have recovered from diseases such as tuberculosis or leprosy, can emphasise how useful the recommended practices have been in effecting a cure. Whatever is used in the demonstration must be cheap and available locally, and not confused with *treatment*. Using appropriate learning aids such as charts, posters, flipcharts or leaflets might increase the effectiveness of the demonstrations.

Exhibitions are another effective method of imparting health information. The CHEB, for instance, organises an average of 15 exhibitions each year on different areas of health and family welfare to educate people on various aspects of health. Assistance is given to both official and non-official organisations in planning the production and use of exhibition media in health education programmes. Besides organising exhibitions, the CHEB also loans exhibition materials to organisations working in the field of health education.

Interpersonal communication, or face-to-face communication, it has been found, is the single most important means for effective dissemination of development messages in rural areas. The village school teacher, health guide, and auxiliary nurse midwife (ANM) all play a crucial role

in such communication. This, coupled with discussions and personal influence, have been found to be important in motivating people to practice family planning.



Box 4

TEACHING BY NECKLACE

Attempts at teaching methods of family planning include trying to explain the details of a woman's fertility cycle. This has led to the development of various charts and diagrams to communicate this information to village people who may be only marginally literate, and unfamiliar with formal methods of keeping count of days and time. Health workers, using blackboard images, often find it difficult to convey the concept of the fertility cycle.

In the past three years, ICA Abidjan has developed an inexpensive 28-bead necklace as an appropriate teaching device for a village-level primary health care programme, and this is proving very effective. The first five beads are red and smooth-textured, and represent the woman's menstrual period. The red beads are followed by five rough-textured, neutral-coloured beads. These 10 beads together represent days when intercourse is not likely to result in pregnancy. Beads 11 to 14 are coloured green and beads 15 to 18 blue. These eight beads represent days when intercourse is most likely to result in pregnancy. Beads 19 to 28 complete the cycle. They are once again a neutral colour to indicate days when pregnancy is unlikely to occur.

In this project, village volunteers gave each participant a necklace. After a 10-minute explanation, the women smiled in comprehension. Because of its low price each participant could take a necklace back with her. The elastic on which the beads are strung allows flexibility in manipulating the beads. If the young woman wants to become pregnant, days 11 to 18 are the days of her cycle which are most important for her.

An understanding of the working of the female reproductive cycle is fundamental in trying to help a woman master the subject of fertility. The lesson can be extended to show how a woman can keep track of her cycle by moving an earring or any other small hooked object to the next coloured bead each morning.

Source: Kenneth Gilbert, ICA Abidjan, 01 BP 3970, Abidjan 01, Cote d'Ivoire.

Hospital- and Clinic-Based Health Education

A combination of services and health education is the most effective in bringing about positive, health-related behavioural changes. Hospitals and clinics, along with the medical personnel and students, play a major role in health education.

Each day, in both urban and rural areas, ill people gather at hospitals and clinics to receive treatment. Almost all their illnesses are preventable and a few could even have been treated at home, at least to some extent. Those working at the hospital/clinic—doctors, nurses other staff and medical students—recognise this, and the fact that these provide critical locations for imparting health education.

There are a number of reasons why the hospital/clinic is an ideal setting for health education. Patients who recognise a health problem come to the clinic, and are more receptive to health learning. Health education in a hospital/clinic can be tied up with the curative care provided by medical personnel who are concerned about the patient's total well-being. A study undertaken by the Central Health Education Bureau (CHEB) has shown that education and information connected to the most common health problems for which hospital care is sought—infectious diseases, nutritional disorders, obstetric and gynaecological problems—is being imparted through talks by doctors and others in the OPD wards and special clinics. These are supplemented by posters, printed materials and exhibitions.

Community-directed hospital/clinic health education involves home visits by public health nurses (PHNs), medical social workers and lecturers in health education, as also group meetings held by PHNs and extension educators. Medical health workers have been found to be more involved in community health education than doctors and nurses.

Yet, hospital/clinic-based health education is not being imparted *effectively*. One reason is that hospitals or clinics in the developing world have an overwhelming attendance. As the staff have barely any time to care for all the patients, the opportunities to respond to needs other than curative are limited. Often, the medically trained clinician is poorly prepared to impart scientific knowledge in a language the patient can understand. Part of the job involves communicating comfortably with a poorly educated person without 'talking down' to him. The patient, on his part, poses a problem: he might be too ill to want anything other than immediate relief. Thus, hospital/clinic-based education suffers from several drawbacks; the major one being that most people who could benefit from improved health practices never appear at a clinic.

Research suggests the possibility of improving the learning environment of the hospital/clinic. It is up to

Box 5

HOSPITAL- AND CLINIC-BASED HEALTH EDUCATION

More than 2 million children under 5 years of age die annually in India from diarrhoea. Dehydration is the major immediate cause of these deaths.

This can be prevented and treated by oral rehydration therapy (ORT). The CMC, Ludhiana, randomly chose 200 mothers from four villages with a population of over 100,000 to study the knowledge, attitudes and practices (KAP) in relation to ORT. The major finding was that only about 23 per cent of the women in the rural areas adjacent to the health centres were aware of ORT, its availability and use. In distant rural areas, the proportion was even less than 9 per cent; in semi-urban areas not too far from the health centre, the figure was 30 per cent on average; and not more than 12 per cent of the mothers in the entire population knew enough about ORT to use it, despite the fact that ORT packets had been distributed regularly by the health department. ORT was still regarded as a prescribed drug, and people did not make it at home. Promoting its use, so that it becomes an immediate response to diarrhoea is, however, not an easy job.

The Department of Preventive and Social Medicine (PSM), CMC, Ludhiana, was able to encourage the use of the home-made solution, and improve the awareness level from 12 to 40 per cent in one year. Education was imparted both at the clinic and through house visits. At the clinic, a few glasses, teaspoons and jars of salt and sugar were always at hand. Whenever a mother brought a child suffering from diarrhoea, the health worker would encourage her to prepare a glass of the solution and administer it to the child. The worker would also emphasise continued feeding, including breast-feeding. Advice on other health-related problems was also included. In this way, the mother, or any other member of the family, could be educated both at home and in the clinic. The facts were recorded in the family health folder, and to reinforce this effort, a leaflet was distributed to each family on home-based ORT in Punjabi and

Hindi. The person crucial to this whole effort was the village health guide who formed the link between the health professional and the community. Regular training and reorientation was provided to the guide with the help of faculty members of the college and multipurpose health workers.

The Ben-Gurion University in Israel has demonstrated how medical students, who are intelligent and highly motivated, can successfully participate in health education projects.

The scheme, initiated five years ago, now involves 120 medical students working on a variety of community-based health projects in 35 schools. Pupils between the ages of 12 and 16 are lectured on a wide range of topics, including smoking, drugs, sex education, personal hygiene and other related issues. The trainee doctors and nurses are committed to spending at least four hours a week in schools and in the local hospital. The school pupils and their parents also attend meetings and health conferences held by the medical students. To familiarise them with the hospital system the pupils are introduced to the staff and shown how different equipment is used. The medical students receive intensive training to help them become effective educators.

Those imparting information in the hospital are trained in how to deal with sick children: they work with the medical staff caring for these children, and help prepare them for any medical/surgical ordeal they might have to face. The impact of the students' teaching is assessed by an annual health quiz competition held for all the school children involved in the project. The work of the medical students is supervised by coordinators, who give the students detailed advice on how to carry out their tasks, stressing the importance of simplicity of language, and matching it to the audience's needs. Making the audience feel they are a part of the decision-making process is an essential element of the programme.



the clinician to assess the patient's state of mind and decide whether or not to attempt to impart health education. The clearer and simpler the education messages, the more likely is a patient to retain it. Building upon existing cultural beliefs and practices is effective: the patients already have a store of traditional knowledge and a clinician who is familiar with the local customs and beliefs might be able to place certain messages—those relating to nutrition, for example—within a context familiar to the patient. Equally important is choosing the right time and environment to impart this information. This is best done individually, and in a setting far removed from the distractions of the waiting room where there are frequent interruptions. Even an informal conversation between the patients and clinic staff can promote positive health practices. For the patient, health education should start from the time he/she enters, to the time of departure. On the patient's discharge slip, a column for health education acts as a useful reminder of the necessary health precautions to be observed by the discharged patient and the drug regimen to be followed.

As mentioned earlier, demonstration is one of the best methods of teaching. The clinician can demonstrate the desired behaviour and make the patient imitate it. Or, if a person is literate, pamphlets are important to reinforce ideas. Patients can even be given a series of pictures illustrating the important aspects of the message.

Where and by Whom Should Health Education be Imparted

Places where people come together frequently—shops, the marketplace, community centres, temples, etc.—provide ideal locations for health education dissemination. The health worker can use these opportunities to interact with the people gathered and discuss various problems. Often, a critical event that takes place can be used to unite people. For instance, the death of a child from diarrhoea could be used as the starting point for a discussion on diarrhoea, its prevention and control. Such groups fulfil social needs as well as provide opportunities for health education. Schools provide an ideal opportunity to educate students and their families.

In fact, every encounter between a health worker and the community is an opportunity to impart health education: in clinics, health centres, OPDs and hospitals. As already established, the education imparted is most effective when it adapts to the local culture and language, and builds upon the existing channels of communication—whether song, drama or story-telling.

In India, there are few trained health workers, but those who are already advising the community—public health workers, agricultural and community develop-

Box 6

COMMUNITY INVOLVEMENT IN HEALTH EDUCATION

Where clinic-based delivery systems are weak, and even existing health services underutilised, building upon the indigenous health care system in the community can have a positive outcome. One instance is that of *dais* or traditional birth attendants who conduct deliveries at home. In the majority of cases pregnant women in the village prefer to deliver at home rather than in a hospital. The surroundings and the methods used by the *dai* are familiar; she and the pregnant woman share the same belief systems. Valued cultural rituals are given as much importance as the actual delivery itself—the disposal of the placenta, the purification of the delivery room, etc. Recognising the community's dependence on *dais*, projects in different parts of the country have focused on training them in scientific techniques of delivery, without interfering with those traditional practices which are harmless. This training or education has involved altering or gradually discarding certain deeply entrenched beliefs held by both *dai* and village women.

SEWA Rural^{*} has devised a pre-packaged sterilised delivery kit to assist *dais* in conducting deliveries. During a routine ante-natal house visit, the kit is given to the expectant mother by the auxiliary nurse midwife in the last few weeks of pregnancy. The ANM briefs the mother-to-be on the importance of the kit and how it is to be used. During the post-natal visit, the ANM checks on how the kit was used. A broader health education campaign directed not only at the expectant woman, but at her mother, mother-in-law and neighbours, has ensured the successful use of this kit.

Dais trained by the community health development programme^{**}, too, have established themselves as key health workers in the community, providing ante-natal, intra-natal and post-natal care, resulting in lowered maternal and infant mortality.

The community-based contraceptive distribution programme (CBD)^{**} in the Chhapra community development block in Uttar Pradesh also relies on familiar and trusted local people to inform and motivate people to accept family planning. The volunteers (*sanyojaks*) are drawn from a variety of professions: RMPs, farmers, businessmen, shopkeepers and teachers. The principal tasks of the *sanyojak* are to motivate people to adopt family planning, screen potential pill and IUD users and distribute contraceptives.

The programme emphasises health and family planning education through group meetings, orientation training for village leaders, exhibitions, film shows, and one-to-one communication through *sanyojaks* and programme staff. Regular training programmes are held for local leaders, teachers, midwives, and other community leaders.

* CHDP and SEWA Rural: Comprehensive CHDP at Pachod was started in July 1977 by the Ashish Gram Rachna Trust based in Maharashtra, in partnership with the OXFAM Health and Development project at Maharashtra. SEWA Rural—Society for Education Welfare and Action—is based near Jhargadra in Gujarat.

** CBD is a joint project of the Family Planning Association of India and the Department of Preventive and Social Medicine at Banaras Hindu University.

ment workers, youth workers, home economists, adult literacy workers and teachers—can impart health education effectively, provided they are given training on basic health issues. Effective health education is directed at people who have influence in the community. Key figures—village elders, religious leaders, traditional healers and birth attendants or *dais*—can exert a great deal of influence on the local community. Health workers have found it effective to elicit their support in initiating a programme, and they are given the basic training at the local health centre.

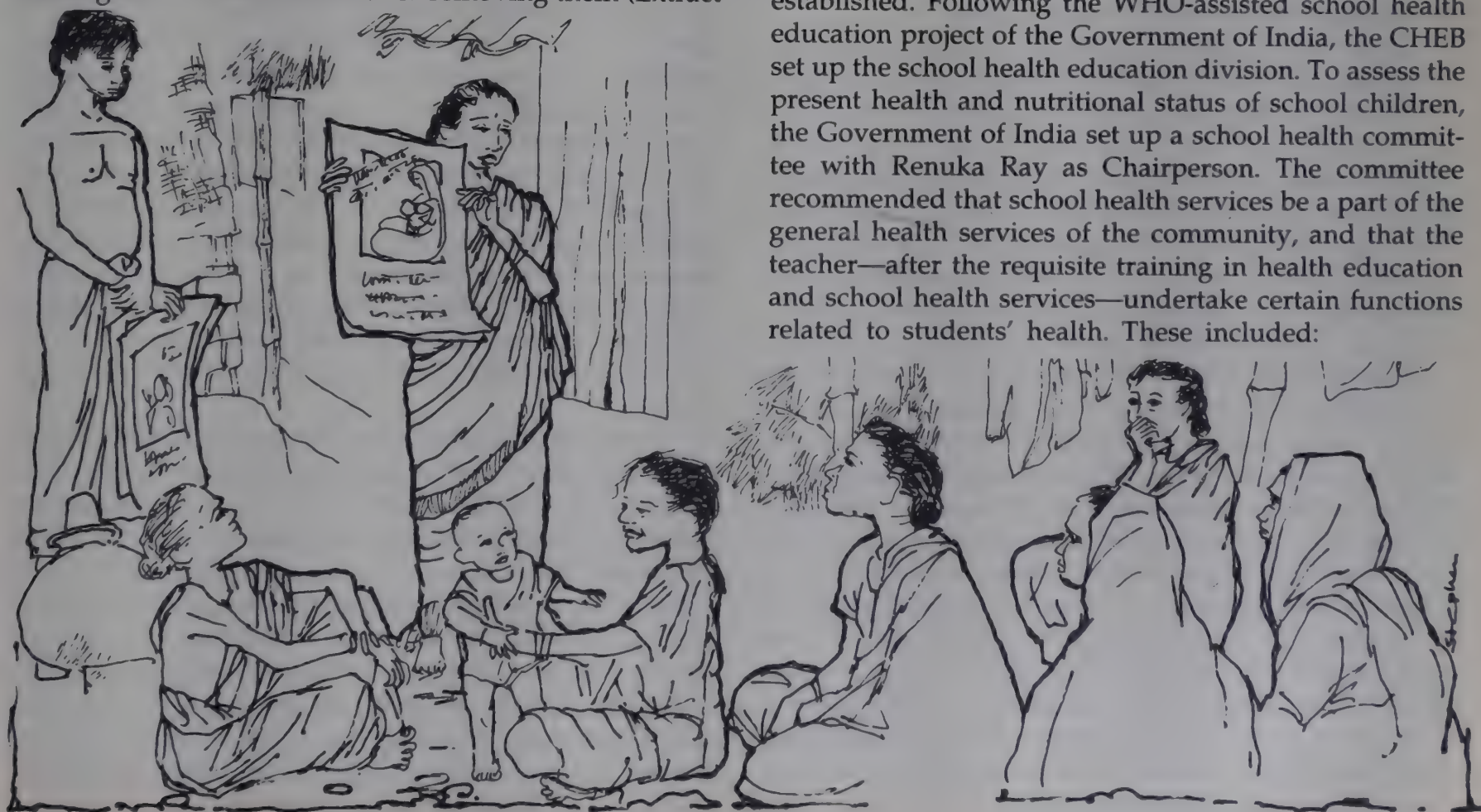
School Health Education

... It was ironical to say the least, that four out of the seven schools visited in Kaptanganj primary health centre in Uttar Pradesh had been provided with an Insat TV set with four special antenna for receiving satellite telecasts. Teachers of the four concerned schools stated that these TV sets had never functioned after installation. Indeed, rats were found to have infested them, and the huge broken antenna were seen lying outside in the open and being used to defecate in by the children. The evaluation team was told that the cost of one antenna and intallation of a set was approximately Rs 60,000 and this, in schools where there was no roof, no walls, no floor, no furniture, no *chowkidar* and no simple conventional facilities for teaching. The grave implications of this tragic waste of public funds has been ignored both by education and health authorities despite the fact that the teachers claimed to have repeatedly pleaded for either making the TV sets functional or removing them (Extract

from the *Evaluation Study of the School Health Services Pilot Project*, National Institute of Health and Family Welfare, New Delhi, 1988, pp. 112-13).

Providing appropriate health education to the 60 million children in the rural areas of India is not an easy task. Various surveys indicate that the majority of these children are undernourished and suffer from retarded growth. As the degree of growth retardation is linked directly to the degree of physical and functional impairment, the picture is dismal, indicating the need to provide a nutritive diet to these children, as also to create an awareness and consciousness regarding health. In fact, India's 8.7 million children enrolled in 5,29,329 primary schools represent the largest and most potentially receptive audience for health education. Children of school-going age are the most susceptible to influences of various kinds. Both the National Policy on Education and that on Health emphasise the need for health education for school-age children. The school offers a tremendous opportunity to impart such learning and reinforce ideas. An example of how school children participate in community-based health education is the child-to-child programme.

School Health Services (SHS) were first initiated in Baroda in the form of medical examination of students. Later, the Central Advisory Board recommended that SHS be a separate service from state health services, which were under the control of the education department. It was the Bhore Committee in 1946 which suggested that medical care and general health services for school children should not be separated from each other. In 1957, a child health and nutrition committee was established. Following the WHO-assisted school health education project of the Government of India, the CHEB set up the school health education division. To assess the present health and nutritional status of school children, the Government of India set up a school health committee with Renuka Ray as Chairperson. The committee recommended that school health services be a part of the general health services of the community, and that the teacher—after the requisite training in health education and school health services—undertake certain functions related to students' health. These included:



THE CHILD-TO-CHILD PROGRAMME

During an outbreak of diarrhoea in 1989, children of a municipal school at Malvani—a slum dwellers' colony 35 km from Bombay—treated 250 patients in the area by providing ORT through house-to-house visits. This is part of the child-to-child programme, which aims to impart simple preventive and curative health care training to school children, who in turn educate other children and elders in the locality. Over 400 million children remain beyond the reach of even minimum essential services in the areas of health, nutrition and education. Recognising this, the UN recommended that this programme be taken up globally from 1979, the International Year of the Child.

The Malvani slum project represents the realisation of a decade-long effort of the Department of Preventive and Social Medicine (PSM) of the KEM Hospital in Bombay, which runs the health centre at Malvani. These children of the local municipal school—'barefoot child doctors'—were chosen as a link between the health centre and the community due to their influence within the family and the community.

Under this project, children of the 6th and 7th standards are taught to identify and treat six major health problems common in slums: diarrhoea, lack of immunisation, malnutrition, TB/malaria, worm infestation and scabies. Specialist doctors and health workers provide basic health information using audio-visuals where specially composed songs—set to popular Hindi and Marathi film music—are used to impart information. The main emphasis, however, is on learning by doing. Each child adopts six families including his or her own, and takes respon-

sibility for their health status with regard to the six specified diseases. Various reinforcement activities have been evolved to help the children retain important facts. Apart from song, dance, skits and games devised to explain each of the diseases, the child also prepares health-related craft items and drawings. The success of this project has been tremendous. The health statistics in Malvani have improved dramatically after its initiation.

There are approximately 23 ongoing projects of this kind in the country. The child-to-child concept has also been incorporated in the Intensive School Health Education Project (ISHEP), the latest government initiative launched in 1989 by the Central Health Education Bureau (CHEB). The project aims to cover 10,000 primary schools in 10 states. If successful, it will form the basis of a comprehensive school health programme. The target of ISHEP is the rural areas, where health messages are conveyed through participatory activities, aiding the learning process.

The child-to-child programme has also been adopted and modified by several voluntary agencies. As part of this approach, children educate adults on hygiene in the community contact programme being run in 10 villages by the Institute of Health Management at Pachod in Maharashtra. CHETNA, based in Ahmedabad, also trains teachers of government primary schools, *balwadi* teachers, *anganwadi* teachers, and *mahila mandal* workers on various aspects of nutrition, cleanliness, and diseases like malaria and diarrhoea.

- Observation of students for defects and deviations from normal health
- Screening them for height, weight, vision and hearing
- Providing first-aid
- Maintaining cumulative health cards
- Imparting health education for the prevention of illness and the development of health-promoting behaviour among students

Of the various school health programmes undertaken by the Government of India, the school meal programme, which provides less than 15 per cent of the total annual dietary requirement, has been unable to dispel the effects of undernutrition during the first five years of growth. However, the programme has been found to encourage school enrolment, reduce the drop-out rate, and provide indirect financial support to poor families. Perhaps the largest mass nutrition programme anywhere in the world is the Tamil Nadu Midday Meal Programme for children, old-age pensioners, ex-servicemen and their widows, and destitutes. Every day, people are fed a hot meal which is designed to contribute one-third of their nutritional requirements. It is an extremely successful programme not merely because statistics establish its impact on the health status of the state, but also because it has an emotional and cultural appeal. The government's Nutrition/Health Education and Environmental Sanitation Project (NHESS) is aimed to promote health education in primary schools, and is even included in the

rural school system. This programme brought into focus the problem health educationists face most often: that of formulating messages that take into account an audience's situation and constraints—that take into account the irony of talking about good nutrition for a child who belongs to a family which barely gets enough to eat. In January 1989, the Ministry of Health and Family Welfare launched an intensive health education project for primary school children in the rural areas, with major financial assistance from UNICEF. The project encouraged self-care by community participation, and involved National Sample Survey volunteers, youth leaders of Nehru Yuvak Kendras and primary school students. The project is being implemented in a number of states. According to the Eighth Plan document, the scheme proposes to cover 5,000 primary health centres in the country to provide school health services in a phased manner.

VHAI's efforts to influence the direct implementation of school health programmes culminated in the Kangazha School Health Model which clearly demonstrates the primary role of teachers and pupils in the provision of primary health care. It also highlights the fact that children, if supported, motivated and adequately educated, can influence their own health and that of their family and community. VHAI's efforts in school health include organising training workshops for the *organisers* and *implementors* of the school health programme, and developing learning materials for the target groups.

In spite of these efforts, however, several rural devel-



opment programmes have failed to make the desired impact because of their lack of coordination. While community participation was being encouraged, in reality the health educators were not communicating with the rural people at their own level. Instead, they were 'talking at' rather than 'talking to' the villagers. Among various constraints faced by school teachers involved in the child-to-child programme are the limitations of time and skills needed for health education, resistance from parents and even children, and the vast number of children in each class.

However, even in the face of these limitations, the school continues to provide an important location for health education. To increase its effectiveness, school-based education is necessarily dependent on links between the sectors of health and education. For this, the health and education systems need to develop a common perception of their goals. The role of the school in imparting education can be strengthened by the convergence of several services: sanitation, public work, and health care. The health education materials being produced in India must be systematised, and methods

evolved for their dissemination and correct application.

If health education is made a part of school syllabi, it will be more readily accepted by teachers as part of their teaching responsibilities and the existing examination-oriented system. Gearing the teacher to be a prime health educator is a major goal of both the health and education sectors. This requires comprehensive pre-service and in-service training to change the teacher's own health behaviour, if necessary, and enable him/her to encourage a similar change in students and their families.

The out-of-school child is often overlooked in health education strategies. Until he/she can attend school, non-formal education centres—day care centres, community halls, etc.—will have to be used to communicate health messages. Such children can also be approached through the mass media, school-going friends, and health workers. Health education camps and *bal melas* can also provide health education to such children.

Communication can also be achieved through radio and television. In most homes, children constitute the largest group of TV-viewers. When demonstrations are used to support a health message on television, the

impact is even greater. Thus, media programmes developed jointly by the health, education, and information and broadcasting sectors could be very effective.

The Medical Industry and Health Action

While an understanding of health was being developed in the voluntary sector, the rapid growth of the medical industry was effectively distorting the concept of health, which resulted in the 'pill', 'tonic' and 'injection' culture taking root. Ironically, with the training of village health workers and the thrust towards rural health, the value of modern medicines was introduced, and the 'pill' culture spread, as it was in the interests of the producers, distributors, dispensers and prescribers. The advertisements of medicines available over the counter over Doordarshan, All India Radio, in newspapers and magazines further helped in legitimising and propagating their consumption. Aggressive advertising techniques deliberately omitted information regarding the dangers and side-effects of medicines, often banned in their parent countries.

Limitations of health budget allocations to government hospitals (district hospitals, primary health centres, sub-centres, especially in peripheral regions) and the association of government health institutions with family planning centres led to the proliferation of private practitioners, RMPs, dispensaries and polyclinics.

As business in medicines became more and more lucrative, RMPs and even many traditional practitioners started making greater use of modern medicines and the sales representatives of pharmaceutical companies began promoting their goods through them. This led to the increasing misuse of medicines and the marginalisation of existing traditional systems of medicine.

Several concerned individuals and organisations decided to get together and try and reverse this trend. The Voluntary Health Association of India (VHAI) organised seminars and workshops in several states on the drugs issue. These brought together committed health workers, consumer groups, academics, journalists and others concerned with the problem. The participants together formed the 'Drug Action Network'. High dose Estrogen-Progestrone drugs were selected for campaigning, since these drugs were associated with foetal malformations and false positives and false negatives when used in pregnancy tests. Other factors influencing the decision to campaign against EP drugs included: those using them were unaware that these drugs were hazardous; there was a ban on one of the multinational pharmaceutical companies producing this drug in its parent country; the drug was being prescribed at random—to induce abortion, as treatment for threatened abortion, and to treat menstrual disorders.



The EP campaign was launched on International Women's Day (8 March 1982) by women's organisations and other like-minded individuals and organisations. It was the first time a coordinated, collective, nation-wide drug campaign was launched. Women health activists and journalists ensured the support of the media and the public, pressure from whom forced the Drugs Controller of India to issue ban orders against high dose EP combinations, with production being banned from June 1982 and sales from December 1982. The Gazette Notification issuing the high dose EP ban order was done on the basis of the ICMR's recommendations. While efforts were being made to ensure immediate implementation of the ban, the campaign suffered a major setback since the manufacturers, Organon Unichem and Nicholas, obtained a stay order from the Calcutta and Bombay High Courts. The grounds for obtaining a stay order were mainly legal, questioning the jurisdiction of the Central Drug Control Authority, as also arguing that had the drug been hazardous the authorities would have banned it immediately and not given it even a few months before discontinuing manufacture and sales. Attempts to apply pressure on the Health Ministry,

Chemical Ministry and the Courts to revoke the stay order were futile. The efforts, however, continued, and more and more health personnel and consumer groups were convinced that this was exploitation in the name of medicine. A public litigation case against the continued sale of banned and hazardous drugs was filed in Kerala in 1982, and in the Supreme Court in 1983. It was only in June 1988, following a Supreme Court Order to hold public hearings in Madras, Delhi, Calcutta and Bombay, that high dose EP drugs were ultimately banned.

While the EP campaign was in progress, the concept of Essential Drugs—the question of large amounts of irrational and hazardous drugs being prescribed—was also being taken up. A workshop on hazardous drugs was organised by VHAI in Pune in January 1982 and in Jaipur in July 1982.

The National Drugs and Pharmaceutical Development Council submitted a report in 1984 which recommended systematically marginalising the consumers' interest and focused mainly on those aspects which were in the interests of the drug industry. This resulted in numerous workshops and meetings being held to discuss and formulate an outline for a people-oriented rational drug policy. Senior journalists, editors, reporters, and students of journalism were briefed in an attempt to explain the drugs issue and convince them about the relevance of a rational drug policy. Doordarshan covered the issue, press conferences were organised, and frequent press releases given. An independent film on the issue—'In the Name of Medicine'—was made a campaign tool. The result of all these efforts was the stalling of the drug policy.

The 1986 drug policy was essentially a pro-drug industry policy, described by newspaper editorials as an anti-people policy. As the shares of the pharmaceutical companies shot up, the health and consumer groups continued to point out that the policy was merely an industry-oriented, drug pricing policy, and not the much-awaited comprehensive rational drug policy. It was also not in keeping with the National Health Policy. The phase following the announcement of this policy was of consolidation: through the propagation of the concept of rational drug use in medical colleges, through the people's science movement, consumer groups, voluntary health institutions, lawyers and sociologists.

The launching of the Baby Food Campaign in 1981 led VHAI and other like-minded organisations to establish NANI, the National Alliance for Nutrition of Infants in 1982. The baby food campaigners in India joined the world-wide boycott of Nestle for their unethical marketing practices. NANI campaigned for the international baby food code to be passed in the World Health Assembly, and lobbied for the enactment of the code at the national level. In 1983 the Baby Food Bill was passed in the Rajya Sabha, but as it was not passed by the Lok Sabha it could not be enacted as a Bill. While attempts

were being made to get the Baby Food Bill enacted, the advantages of breast milk over packaged substitutes were being widely disseminated to general practitioners, health personnel, and others. VHAI, in collaboration with UNICEF, undertook an extensive survey of the understanding of infant feeding practices among medical practitioners, nurses and young mothers. An information service to respond to queries of young mothers was started: leaflets, posters, articles, magazines, newspapers, workshops and seminars were organised. Advertisements in magazines and on television which violated the WHO baby food code were screened and objections raised. As no Bill had been passed in the Lok Sabha, the Ministry of Social Welfare dealing with baby foods permitted the advertisements. Since they recommended that weaning foods be given to infants from the age of 3 months—almost constituting substitutes for breast milk—the Bill did not satisfy baby food campaigners.

Commercial baby foods continued to be gifted to maternity homes and advertisements of bottles and nipples for feeding increased. Over the years, the Baby Food Campaign has been linked with campaigns against unsafe medicines for children, such as gripe concoctions and unsafe foods (such as noodles which contain monosodium glutamate).

The campaign is still trying to get the WHO code enacted, to curtail the unethical promotional activities of the powerful baby food industry, as also to make the public aware of the implications of giving babies commercial preparations.



Box 8

FARMERS' HEALTH EDUCATION

In the West, conclusive studies on the ill-effects of pesticides such as DDT and BHC have led to their being banned. Farmers have switched to more expensive, but safer pesticides. In India, however, pesticides account for 50 per cent of the cost of plant production, and hence farmers are averse to the idea of switching to expensive ones. Farmers spray methyl parathion on cauliflower to give it a whiter appearance; ladyfinger (*bhindi*) is coloured with copper sulphate to intensify its greenness. The rule that no plant should be sprayed a week before the harvest is often violated. In many states, instead of spraying a crop seven times, it is often done as many as 30 times.

Health education is being directed at farmers to teach them to use pesticides judiciously; to educate them about when and in what quantities their use is safe. Farmers' education is also aimed at increasing their knowledge of alternative methods of pest control, such as biological control. Many pests have natural, biological enemies capable of controlling them without the use of chemicals. Eight such predators of common pests of sugarcane, rice, and fruits such as apple, have been used successfully by the government. The department of biotechnology (DBT) has arranged a series of five farmers' *melas* to promote the use of biological control agents. Under the project, 11,000 hectares in seven states are covered for demonstration purposes. The 'green' technology is already becoming popular in several districts of Tamil Nadu: those farmers who have visited the 100 or more demonstration plots, covering over 1,000 hectares in the state, have asked for more biocontrol agents.

During the first of these *melas*, held recently in a small village in Dindigul—in Quaid-e-Millet district about 100 km from Madurai—an expert explained the advantages of discontinuing the use of pesticides and told the farmers how to control pests biologically.

Education also advocates integrated pest management which uses all suitable pest control techniques in as compatible a manner to keep the insect population below the level at which they cause damage.

The *Status Report on Pesticide Residues vis a vis Consumer Protection*, brought out jointly by DST and VHA in 1987, lists the following maladies which affect human health as a result of pesticide residues.

- Cancer
- Epilepsy
- Disorders of the respiratory tract
- Liver tumours
- Miscarriages, stillbirths
- Tuberculosis
- Damage to the eyesight
- Gastrointestinal disorders
- Dwarfism

Precautions to be observed both by farmers and others who handle pesticides is also part of health education. Such education teaches health workers to recognise the symptoms of pesticide poisoning, and be able to treat these immediately.

People's Science Movement

The People's Science Movement (PSM) is aimed at popularising science and a scientific attitude among

people in order to mobilise them against the abuse of science and to agitate for the development of self-reliant science and technology for the nation. The movement has received a major thrust over the last four to five years,

Box 9

SCIENCE FOR CONSCIENTISATION/SOCIAL REVOLUTION—KSSP'S EXPERIENCE

The Kerala Sastra Sahithya Parishat (KSSP) is a people's science movement engaged in a spectrum of activities to popularise science. KSSP believes that science is a powerful tool for social conscientisation and transformation. From being a science writers' forum, it has grown to be a people's science movement, consisting of about half a million active members from various walks of life: scientists, doctors, engineers, teachers, professors, students, peasants, the jobless and oppressed.

KSSP as a catalyst activates a search for alternatives sensitive to people's needs, and has been leading the people's science movement in India. Its activities are multidimensional. They include research and development in rural technology and its dissemination; writing and publishing science books and periodicals; developing and propagating innovative concepts in education, both formal and informal; conducting studies and surveys; organising campaigns against environmental pollution, deforestation, incorrect health policies, the misuse of medicines, unscientific development policies, and exploitation of women. A new form of communication strategy called 'Sastra Kala Jatha' (the powerful cultural programme which includes street plays, skits and songs to communicate the concepts of science in a simple language), apart from other conventional communication methods, have been welcomed by the people with great enthusiasm.

In the field of health, KSSP questions the existing health care

delivery system which is highly individualised, curative, institutionalised, and too expensive to be accessible to the poor majority. Studies and surveys, publications, classes, discussion, seminars, campaigns, street plays and songs focus on the minimal role drugs and hospitals play in achieving health for the poor. Campaigns are organised to expose and fight against the anti-people and exploitative tactics of drug companies. KSSP holds that only a strong and organised resistance against the vested interests of multinational giants and business tycoons will play a major role in the campaign for a people's health policy in our country. As far as health is concerned, the aims of the KSSP are manifold, but it basically aims to demystify pharmaceutical products and medical science itself. In this way, it hopes to be able to conscientise doctors, students and ordinary citizens on wider health issues.

Apart from the recognition and solidarity from the people (which it counts as the best reward for its committed work), the KSSP has won many important awards which include the coveted Indira Gandhi Paryavaran Puraskar for the year 1988 and the first King Sejong Prize of UNESCO in 1990.

The KSSP firmly believes that ecology, health, literacy and economy are closely interrelated. Only a healthy and pro-people approach can make possible sustained economic growth, a must to make the earth a better place in which to live.

with numerous organisations like the KSSP, Lok Vigyan Sangathan and Eklavya taking on such issues of relevance as the Bhopal tragedy, people's science *jathas*, science for the villages, and health and drugs.

Three major 'alternative science congress' meetings have been held in Bhopal, Calcutta and Bangalore. Attempts have been made to integrate women's issues and literacy—or the right to know—within the movement, in the absence of which, science for the people will continue to be an empty slogan. It is this relentless effort by the PSM activists that has made Ernakulam in Kerala the first district in the country to achieve 100 per cent literacy. *Padyatras*, *kala jathas*, films, slides, booklets, leaflets, posters and banners have been used in this movement. A national Gyan Vigyan Jatha was organised in 1988. In Bhopal over 5,000 PSM enthusiasts, socially-minded intellectuals and activists met with the objective of systematically analysing science and technology policies and their impact on society, and demystifying and building people's awareness to curtail exploitation in the name of medicine. In West Bengal, *Utsa Manush*



is an organ of the people's science movement.

The difference between the PSM and other educational efforts is that awareness-raising is aimed basically at empowering and organising the people. It attempts to encourage people to question, to be analytical and try to verify a situation before accepting it. Most of the people involved in it are those who share a common perspective and it is this that links the various groups and individuals.

Box 10

UTSA MANUSH—AN ORGAN OF THE PEOPLE'S SCIENCE MOVEMENT

In 1980, shortly after one of the biggest political and cultural turmoils in the state of West Bengal, a few conscious individuals brought out a monthly magazine on science, society and culture with the idea of uplifting the spirit of enquiry, and raising scientific consciousness among the people. Thus, *Utsa Manush* was born—not as an organisation, nor even as a political organ: its objective was to help people identify and analyse their daily problems with a rational approach.

Conscious social workers believing in the role and strength of science started to come closer. Small groups were formed in various districts, towns and villages, and science clubs were also established to implement this idea, which culminated in the 'people's science movement' in West Bengal. Various programmes were launched which thus helped *Utsa Manush* increase its circulation within and across states. In response to suggestions by readers and also to meet the demands of the situation, *Utsa Manush* has now extended its coverage to the fields of health and medicine, abuse of drugs, nuclear hazards, women's liberation, environmental pollution and other topics of social relevance.

Utsa Manush has also emerged as an informal organisation and started to participate in other allied activities: it helps local science clubs organise poster exhibitions and group discussions during festive seasons to facilitate closer interaction with the readers and the activists of the people's science movement. *Utsa Manush* also functions as a coordinating platform and is instrumental in promoting useful publications brought out by other organisations such as the Drug Action Forum, Scientific Workers' Forum, Anti-Nuclear Forum and Manas. *Utsa Manush* has also organised regular seminars/discussions since 1984 with a view to facilitating a better feedback from different sections of society.

Utsa Manush is now a registered society actively involved with these several functions. Today, it is considered a symbol of scientific culture.

Where is Health Education going Wrong?

India has one of the most extensive health education programmes in the developing world. Yet, its achievements hardly reflect this: the population increases by 15 million every year; maternal and infant deaths are still high; public health hazards such as infectious diseases, malnutrition and ever-expanding slums still exist; 80 per cent of India's population is rural-based, mainly illiterate, with little or no access to health care facilities, adequate shelter, clean air, water, and adequate food supplies. Health education cannot hope to eliminate all these problems.

Health education, as against curative medicine, still remains a low priority in health services. Thus, key decisions regarding the content of health education are made by medical personnel who are not trained in communication and behavioural services. This *inadequate training* of educators acts as a major constraint.

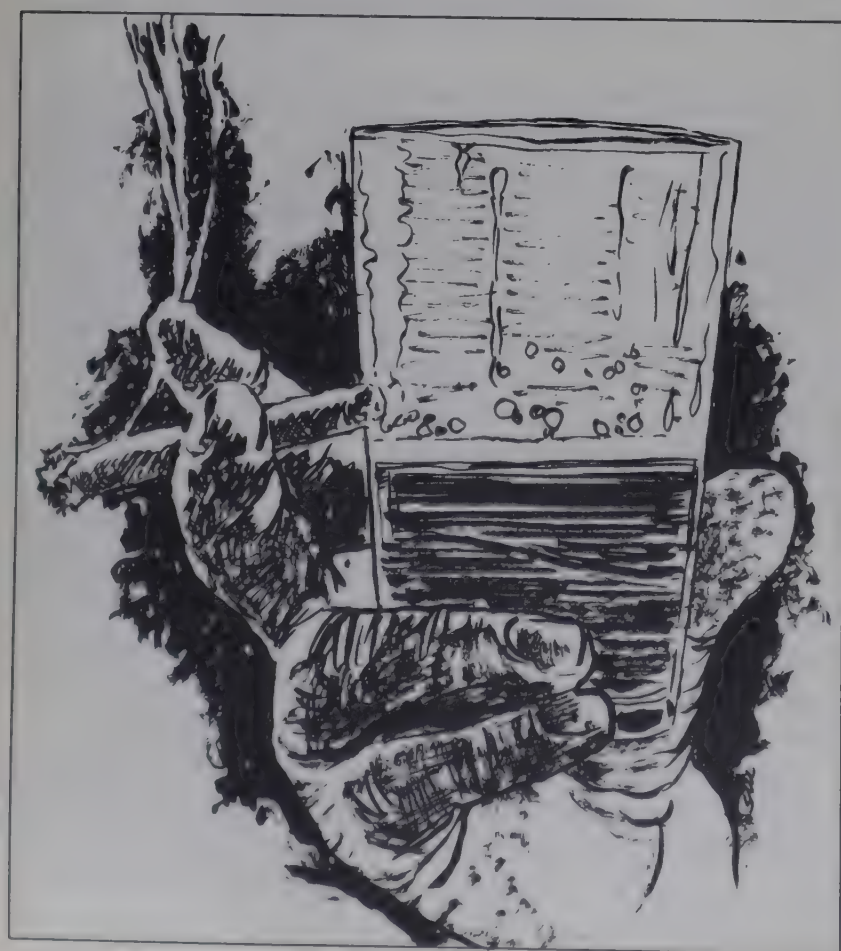
Health education is still regarded as separate from the overall process of development: family welfare and national health programmes offer a good example of this. The thrust of the tuberculosis programme, for instance, has been on the problems of case-finding and awareness-

raising. Not enough attention has been paid to the availability and accessibility of health services, and interpersonal communication between the health worker, the patient and the rest of the community. Field studies indicate that the real factors responsible for constraints in this programme were different from those 'perceived'. As a result of weaknesses in the services, a large number of TB cases who sought help were not being diagnosed as patients of TB, and were being turned away with a bottle of cough syrup. This brings to light another reason for failure: that of inadequate 'follow up'. Often, the impact of health education is already affected by structural constraints: people can and do know how to change behaviour to promote health, but, they must have access to resources and services to be able to do so. Often the follow-up of services after a particular health communication has taken place is poor, undermining whatever impact there might have been.

Presently, the necessary linkages between education and health services are poor. Misleading health-related information is being disseminated by people who are actually benefiting from the 'sales' of certain products. Health education budgets cannot, for instance, compete with those of advertising firms hired to boost the sales of drugs or cigarettes. Although the media—radio, TV and newspapers—coverage on health issues has increased in India, public consciousness—on what health for all means, what people must do to change their own outlook and lifestyles, or what kind of economic and social measures need to be implemented as part of health policy—has not shown any marked increase. A case in point is the increasing incidence of alcoholism in India,

as also an increasing number of smokers, despite a ban on their advertisement through certain media.

Contrary to what health educators believe, the mass media are often ineffective in imparting messages to rural communities, unless these are reinforced by the traditional media and one-to-one communication. Most often, communication planners are urban-based and highly educated, which prevents them from understanding the needs of the illiterate rural audiences for whom



they are designing programmes. The result is that most communication strategies do not take indigenous concerns into account. This is largely because health educationists have accepted the view that Western medicine is 'good' (the government's health and family welfare programme is a good example) and that the 'superstitious, illiterate, ignorant and tradition-bound' rural people must change their attitudes and accept the messages handed down to them by government agencies. Such a 'victim-blaming' attitude has certainly not helped achieve any health goals. As can be seen from India's family planning programme and UNICEF's efforts to 'sell' immunisation programmes, the social marketing approach, in reality, is deviating attention from the problem.

Recommendations

The large-scale mobilisation of different sectors, and active community participation is needed for health development. There should be a heightened awareness of health education needs and priorities among policy-

makers and the public, in order that these can be transformed into policies. Health education must influence organised groups to obtain lobby support. In fact, the scale of present health education operations must increase: the nation and its leaders must be actively involved; appropriate methods of communication must be used; a comprehensive plan for health education should only be drawn up after identifying *priority areas* on health in each region. Once population- or group-specific health problems have been identified, specific goals can be set. Health education must be based on the socio-cultural and economic conditions of the different target groups and local involvement sought at every stage. For data on the socio-cultural aspects of a health problem, KAP surveys (knowledge, attitude and practice) are needed for various target groups, which could be segmented as follows:

- Urban and rural public
- People in isolated areas
- People affected by certain health problems, i.e., diarrhoea, TB, malaria
- Those at high risk: pregnant and lactating women, infants, etc.
- Policy-makers
- Mass media groups, women's organisations, etc.

Although such KAP surveys are available, the educational approach and the process of behavioural change in the community have not been explored. While maternal and child health, family planning and population education have received the most attention, subjects such as nutritional programmes and behaviour and evaluation studies on training programmes, communication and health schemes have been ignored. Relevant and practical field research activities aimed at developing and strengthening the educational efforts in the health system as well as those of related sectors are needed. Today, there is insufficient research conducted following a programme to determine the exact causes of failure. And, there is not enough coordination to bring together the successes and failures of programmes, and the information necessary for the formulation of future education strategies. Thus, *evaluation*, or the impact of health education is an important area of research.

Improvement in the health status of the population is the ultimate goal of health education, or the 'health for all' strategy. The impact of health education on people's lives can be assessed in several ways. In most countries, it is not feasible to assess this impact in figures—in terms of overall reduction in mortality—or to attribute any improvement that has taken place to the education programme. Although the key indicators of infant mortality and life expectancy constitute the yardstick of long-term health or demographic effects, they are only the final or ultimate step in the evaluation process. Such dramatic changes, however, are not possible in the short-term,

which makes assessment difficult. It is only in long-term projects, such as family planning programmes, that impact can be measured, in terms of birth spacing or lower birth rates.

Thus, short-term impact is a better measure of whether or not a health education programme is reaching the intended audience. This involves measuring what changes have occurred in the community for whom the programme was designed through a knowledge, attitude and practice survey before and after the programme. This helps determine intermediate stages that might be initial indicators of the success or failure of a project. In this method, those who are exposed to the project are compared with those who are not, to exclude the possibility of other factors or influences that might complicate the evaluation process. The impact of public health and education—aside from the obvious success stories—can be understood only by talking to people, listening to stories that will never make newspaper headlines, but which are nevertheless significant. Sitting with villagers, with children in schools, with mothers in a clinic and listening to them talk appears to be the only way to understand whether and where public health and health education have had an impact. The lives of people, and how they have changed, are the best indicators of impact.

In the Ashish Gram Rachna Trust based at Pachod in Maharashtra, for instance, an innovative education programme in growth monitoring was devised when it was realised that first, second or third 'degree' malnutrition made little sense to the local people, even in the vernacular. 'Tell me about the health of my grandchild in annas of a rupee', said a woman to the health worker. To this day, '16 annas to a rupee' is the traditional form of expressing percentage:

100% = 16 annas in a rupee

75% = 12 annas in a rupee

50% = 8 annas in a rupee

25% = 4 annas in a rupee

Hence:

Normal = 16 annas in a rupee

1st degree malnutrition = 12 annas in a rupee

2nd degree malnutrition = 8 annas in a rupee

3rd degree malnutrition = 4 annas in a rupee

Today, parents in the area are fully aware of the nutritional status of their children and can maintain their own growth charts in this way.

Other important areas where research is urgently needed include:

- Identification of priority groups for education, followed by KAP studies of these groups
- The relationship between people's knowledge and health behaviour, as knowledge does not necessarily initiate a change in behaviour
- Identification of who has the most influence on people in a community

- Comparative analysis of different methods of information dissemination: channels and media of communication and their relative effectiveness; various education and training programmes
- Identification of potential health educationists (health workers, teachers, professional groups, informal leaders, etc.)
- Analysis of present health educationists and their effectiveness in imparting health education to target populations
- A continuous evaluation process of education programmes, particularly on how health messages can be made as compatible as possible with local customs and traditions

Health workers must familiarise themselves with local traditions and customs and frame education messages taking into account indigenous health concerns. Rather than challenge local beliefs, a more effective approach is to build on these traditional beliefs by supporting the community's efforts and extending existing concepts.

Education should be adaptable to the local culture and language, and should build upon existing channels of communication—song, drama or story-telling. Folk media still remain underutilised: local artists of the community—story-tellers, painters, poets, singers, writers—should be involved in education programmes.

Mass media productions should be decentralised: there should be increased interaction between the producer of a TV/radio programme and the worker in the village, so that the appropriate messages and media mix can be worked out. For instance, TV and radio

should be used to support what is happening in the field as this *reinforces* or legitimises messages. The paucity of material for the non-literates in society can also be overcome by increased interaction between the producer of the material and the health worker and members of the community. People are the greatest resource in education strategies. The potential of many groups remains untapped: people who have influence in the community—key figures such as religious leaders, *dais*, traditional healers—should be given training in health issues. Others, like medical students and doctors, should be trained and motivated to impart effective health education. The training of teachers as health educationists must also be strengthened. As the school is a critical location for health education, it should be made an integral part of school syllabi. Thus, the role of the health educator must be strengthened: this involves intensive training not only in health, but also in communication, use of the mass media, marketing and advocacy, as also the ability to implement programmes.

Health education must focus on special 'problem' groups—women, farm labourers, and others at risk from occupational hazards. Health is a product of social action and interaction: health educationists must break away from their isolation, and build alliances and networks with the mass communication sector, with educators in schools, with professional and community organisations, with business and other groups, and above all, with the people. Effective networking is essential to bring together information on scattered pilot projects, and for research in planning future programmes.







Health Information Systems in India

Introduction

It is now well-recognised that a determination of health needs is the precursor to establishing priorities and allocating resources towards a system of health care that is equitable and effective. A thoughtfully created health information system is an essential tool for the provision of insights into the planning, administration and quality of health services in a given area. A community can use this information to arrive at a diagnosis of its health situation and can collectively strive to combat problems. Health information systems are now increasingly being seen as a mode of strengthening the management of local health services.

The primary objective of collecting and processing data at the grassroots level should be to facilitate decision-making for field workers and the community. Information gathered may be passed on to the middle and higher levels of administration to aid policy decisions. At the community level, information should be utilised for self-monitoring and establishing priorities.

Reliable information is needed by policy-makers and administrators on the various ongoing health programmes for evaluation and justification of the resources being invested in them, and to check if the needs of the people are being met as a direct result of their interventions.

In a recent survey, most of the programme administrators asked to specify their data needs felt that they required no statistical information and only a few felt that they needed to know why their programme was not working.

Presently, there are about seven sources of health information in India. These are:

1. Decennial Population Census
2. Civil Registration System (CRS)
3. Sample Registration System (SRS)
4. Survey of Causes of Death
5. National Sample Survey (NSS)
6. Family Welfare Statistics
7. Management Information and Evaluation System (MIES)

In addition, each national health programme has its own system of collecting and analysing programme-specific data, some more sophisticated than others, but all of which function independently. Thus, there are several parallel flows of information and it is virtually impossible to get a total picture of any particular district, leave alone the entire country.

Even among those sources of health information which have existed for decades, the quality of data leaves much to be desired. The CRS, which attempts to collect information on births and deaths, suffers from incomplete coverage and under-registration: on comparing CRS statistics in 1976 with those available from the SRS, a more reliable method of estimating fertility and mortality initiated by the Government of India in 1964-65, it was found that 37.2 per cent births and 48.7 per cent deaths were not registered under the CRS. The under-registration was even higher in rural and remote areas. Similarly, the infant mortality rate according to CRS figures was only 49 per 1,000 live births as compared to the SRS estimate of 125 per 1,000. The NSS too has been known to collect information which has no value for planning or monitoring programmes.

The family welfare programme has been active in formulating various procedures for data collection. In the early 1980s, as a result of the recommendations of expert groups, a new system of 'integrated records and returns' was implemented in various states. This system specified the minimum number of records to be maintained to cover essential information. Information collected by the PHCs would be passed to the centre through the district health departments, and returned to the districts after the information was processed. This elaborate strategy failed for various reasons:

- Records were not maintained due to a shortage of stationery and reporting forms
- Non-availability of adequately trained statistical staff at the PHCs, districts and states
- Lack of coordination between programme officers at the district level
- Unwillingness of states to take any responsibility since the prescribed channels were from the district to the centre directly

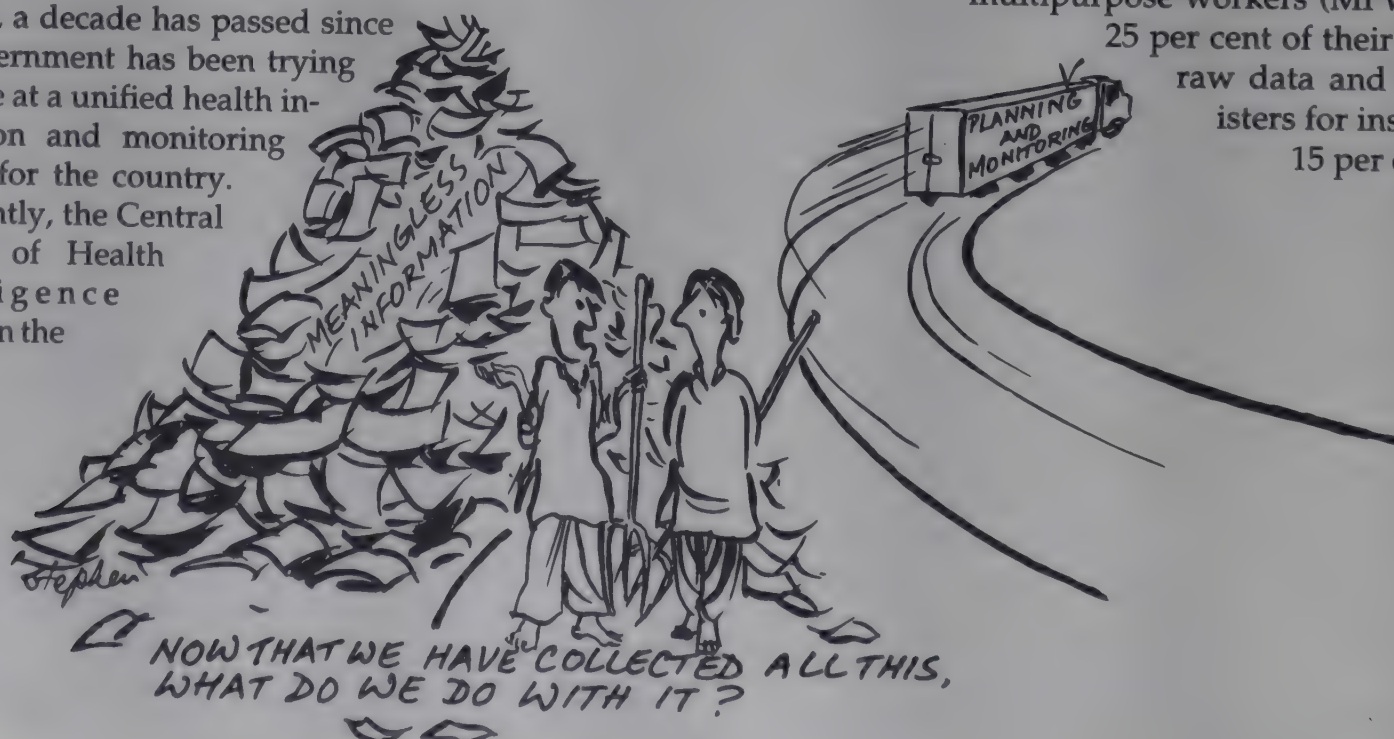
Thus, a decade has passed since the government has been trying to arrive at a unified health information and monitoring system for the country.

Recently, the Central Bureau of Health Intelligence (CBHI) in the

Ministry of Health and Family Welfare established an integrated management and evaluation system for the entire health and family planning programme in the country. Under this scheme, the PHC is expected to forward information of its various activities, which is to eventually reach the CBHI in the form of reports for computerisation and generation of output tables. In view of the untimely and irregular reporting of the PHCs in the past, the future for such a system seems bleak.

A proposal in the pipeline is to computerise the entire information set-up, from the PHC level upwards. Elaborate forms have been visualised for the personnel in the PHCs who would feed in the raw data collected from all the sub-centres into computers. The completed forms would be forwarded to the district health statistical cell and, eventually, the centre. However, as most PHCs remain closed and even the operational ones often do not have the basic health and sanitation facilities, maintenance and management of computers seems absurd to say the least. Thus, a true health profile of India is simply not available: information available is merely gauged by extrapolating available data and conducting occasional studies/surveys. The possibility of feeding essential information into the planning apparatus on a continuous basis simply does not arise. No comprehensive community surveys of health and morbidity are available, as a result of which no worthwhile time services health indicators exist. Cause-specific reporting is inaccurate and non-comparable from area to area. To gain an epidemiological profile of a population, to determine the need for health services, information regarding poverty levels, access to protected water supply, sanitation and hygiene, could be useful indicators. However, when information on vital statistics is not even available the possibility of obtaining such indices seems distant.

At the grassroots level, estimates indicate that multipurpose workers (MPW), spend 20 to 25 per cent of their time collecting raw data and preparing registers for inspection. Ten to 15 per cent of the total programme budget





also goes into activities related to data collection and compilation. This considerable input shows that data collection is an important activity. However, MPWs are not trained to collect data, the incidence of errors is quite high. MPWs do this job mechanically, trying to reach the performance targets set by policy-makers. Thus, figures may be inflated, depressed, or entirely fudged, as MPWs often feel that these statistics are in fact used to keep a check on their activities. Data generation is therefore perceived as an additional although necessary chore. By the time the data reaches the centre, it has invariably lost its value for action-oriented use.

Even in urban areas information coverage is incomplete. In one instance, the cholera epidemic in New Delhi in 1988, there was no bureaucratic accountability and attempts were made to actually suppress information. The few urban units that send in information do not represent the total picture. No information is available on the catchment population either.

Thus, what we have today is a situation where specific information systems for the various programmes exist independently, each generating low-quality data in a non-standardised format which is demand-oriented rather than user- or community action-oriented. Further, most of the information is for archival purposes and is stored away, never to be used.

No viable health information system exists in the country today. All that is being done is to perpetuate the existing health information system with minor modifications and pump increasing resources towards newer and more sophisticated versions of data collection. Unless the people at the grassroots constitute the real agents of their own development, evaluating their own programmes, no system, however novel, is likely to succeed. Various voluntary organisations are shifting towards such participative approaches to information gathering and evaluation with considerable success. Relationships centred around equal and lasting dialogues are being built up

between communities and programme initiators so that information systems become a collaborative effort. A research project undertaken by the Institute of Health Management at Pachod exemplifies such an endeavour.

Knowledge about a social setting is not the same as that obtained from it, which culminates in a 'process meant to raise the consciousness of people. It is a

common search for prescriptions for action, by external evaluators and people working together. It seeks to transform reality in the very process of defining it' (Srinivasan 1981).

In order to enable people to be involved in such a process, however, the importance of meaningful training cannot be undermined. People have to be aided in

Box 1

A COMPREHENSIVE HEALTH AND DEVELOPMENT PROJECT AT PACHOD

A comprehensive health and development project (CHDP), serving a population of 50,000 in forty-two villages was started in Pachod district in Maharashtra in July 1977. The primary objective is to make rural health more effective within the overall policies and framework of the government programme by wider application of innovative modalities and rational and efficient use of limited resources.

Many innovative strategies were adopted under this project and have proved to be a great success, largely due to the leadership, a committed team of workers and a strong participatory base. This project has demonstrated that with an effective management tool, even poorly performing workers are compelled to show results.

In Pachod, community participation is not a well-rehearsed cliché but a reality. The approach followed is 'start from below, rather than impose from above'. Consequently, the health delivery 'agents' in Pachod are not doctors and nurses but ordinary women of the community; the motto thus is, 'health by all, not merely health for all'. This is carried out by incorporating people's beliefs and practices in health delivery rather than summarily rejecting them.

The CHDPs aim to demystify technical medical knowledge and to devise training and health awareness materials to match the level of comprehension of the trainees and of the project population.

The main problems faced by the people of the area are socio-economic deprivation, a low literacy level, and high infant and maternal mortality rates. Water scarcity is another major problem in the area.

All the field staff are recruited from within the project area and trained by the project staff. The main emphasis of the programme is maternal and neonatal care, child health, immunisation and prevention of malnutrition. The project has also established an effective follow-up and referral system from the periphery to the base hospital. Every field worker's work-load is programmed in advance to avoid confusion and overlapping. This also gives the field workers a precise time-table to carry out various activities among a specified target population. Their performance is also closely monitored.

The project gives highest priority to midwifery services and maternal care. The original plan to train community health workers (CHWs) in midwifery was revised when it was realised that the community's dependence on *dais* made them more appropriate candidates for specialised training in midwifery. In this way, deeply-entrenched beliefs were not rejected outright, which would only have created hostility and resistance to the acceptance of new ideas and practices. The status of *dais* has since been upgraded and they are now regarded as professionals in their own right.

Local, primarily illiterate, people were selected as CHWs. A simplified system of training, testing and monitoring had to be devised. The written word was substituted with symbols which were developed through a participatory research exercise,

arising out of the perceptions of village women. Hence, rather than treating illiterate women as a liability, the programme drew on their latent intelligence and made them skilled and knowledgeable in a very short time.

One of the CHDP's major innovations are health 'posts' or 'clinics' convened twice a month in each village, conducted by an auxiliary nurse midwife (ANM), the local *dai* and the community health worker of the village. The greatest impact of these health posts has been on the diffusion of knowledge about maternal care and the provision of related services. Postnatal care is taken in the form of home visits by *dais* and ANMs. The CHDP covers a population equivalent to that under the government schemes, but with only two ANMs. Jeeps transport them to different villages each day, and there is no expenditure on construction, as the health posts are organised in village-based facilities.

Under child health services, growth monitoring, nutritional surveillance, immunisation, health and nutrition education, treatment of minor ailments and chronic diseases, promotion of oral rehydration therapy, treatment of vitamin A deficiency, and referral are included. The emphasis is on preventing malnutrition rather than treating it. Creches or *anganwadis* set up for working mothers also serve as an effective and acceptable village-based institution for child care and improved health and nutrition.

The CHDP has also concentrated on some environmental programmes: the training of village masons in the construction of biogas plants, the promotion of smokeless *chulhas*, building of community latrines and afforestation are some of the main programmes in that field.

Community financing of primary health care is an important feature of the CHDP. Remuneration by the community, in addition to the stipend, provides CHWs and *dais* with an adequate income which is linked to performance. The financial inducement to promote preventive measures such as immunisation, vitamin A concentrate and growth monitoring has been highly effective.

Evaluation is yet another people-based tool to influence the quality of health care, as critical reflection of their own situation can mobilise people into action for determining appropriate solutions to their own problems. The group monitoring meetings and in-service training sessions also help sort out problems and stimulate discussions.

The CHDP has begun to assist voluntary agencies in Maharashtra to develop systems of planning, training, reporting and monitoring. It believes in a process of continuous self-analysis and assessment, based on the attitudes, perceptions, reactions and requirements of both the workers it uses and the people it serves. As a result, the project has succeeded in providing need-based services in an appropriate manner, at the right time and place, and through the most acceptable channels: the community itself. The resulting improvement in the health of the community speaks for itself.

developing skills for data collection and evaluation.

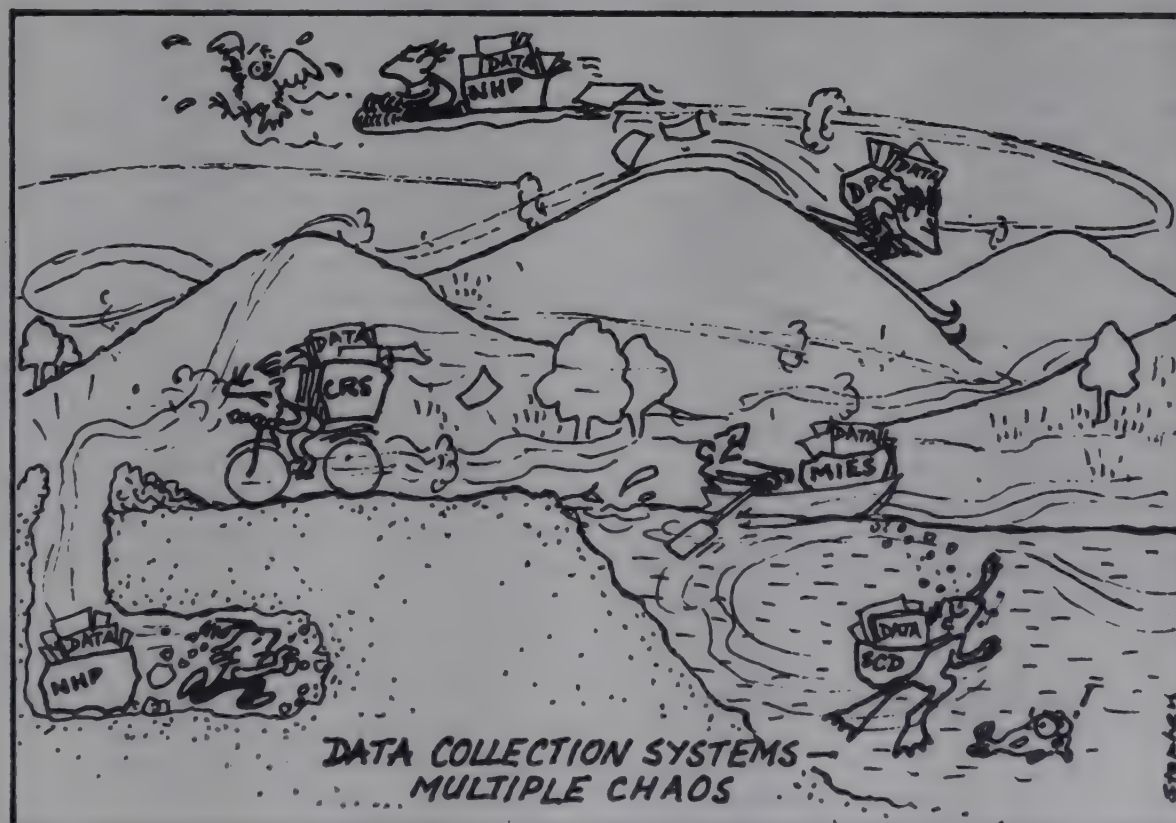
It has been seen that village workers who have had little formal education but have undergone a short training process are capable of collecting accurate demographic and morbidity data, classifiable by age and gender. Symbolised formats for recording information need to be developed, especially for the traditional birth attendants who often lack education. Simple and comprehensible systems would enable community workers to assess their needs, plan their work and monitor and evaluate their own performance. The system also needs to be flexible so that new notifiable conditions or diseases can be easily added. It should be acceptable not only to the collectors of data but also to the providers in terms of confidentiality and cultural sensitivity. It should be capable of detecting health problems in time, and a sensitive information system should be able to respond within a matter of days.

Only valid data should be collected: thus, a health information system designed to guide a community in effectively meeting its health care needs should start with the peoples' perceptions. A social interpretation of epidemiological data is therefore necessary. To arrive at meaningful interpretations, it is essential to link cultural meanings concerning various health problems with behaviour and the use of available health institutions.

When health workers have the immediate need for information to plan, coordinate, direct, monitor and evaluate programme activities, and have the opportunity to use the information they generate, increased motivation and interest in tailoring data to meet specific needs will follow automatically.

Meaningful information systems need to be developed among communities, and in institutions which provide health care. In a health centre or hospital, it is necessary to constantly monitor whether or not a particular input (which may be an investigation, an operation, some equipment, a doctor, or even the hospital) has performed satisfactorily. This is especially necessary in view of the technological advancement that has permeated the medical profession today. With the cost of medical treatment rising disproportionately to inflation and the patient having to bear the brunt of an inherently exploitative system, it is necessary to constantly take stock of the needs of any institution with the patient as the focal point.

Sheldon coined the term medical 'audit' to mean 'the study of some part of the structure, process and outcome of medical care carried out by those personally engaged in the activity concerned to measure whether set objectives have been obtained and thus assess the quality of care delivered' (quoted in Pollock and Evans). The



participants in such a procedure are the doctors themselves, forming a peer review group. Audits are a means to ensure accountability from all levels of staff in the general interest of the patients. Such attempts have been successful in several countries, and even in India the concept is rapidly catching on.

The usefulness of any information system can be gauged by its ability to lead to the prevention, control or improved understanding of adverse health events, both by those who formulate and use the system and by those who make policies and decide on appropriate interventions on the basis of data received.

Box 2

MEDICAL AUDIT

Although the term 'audit' refers to the analytical scrutiny of records related to any process that entails record-keeping, it now goes beyond the realm of finances. It refers, in its broader meaning, to any exercise that tends to look at input versus output, and at the infrastructure that governs both.

In the field of medicine, audit is necessary to determine whether or not a particular input has performed satisfactorily. It is a system of administration which requires each professional to periodically take stock of the health system of which he or she is a part, while monitoring his or her own activities and conduct. We cannot better the definition of medical audit set out by Sheldon: 'An audit is the study of some part of the structure, process and outcome of the medical care carried out by those personally engaged in the activity concerned to measure whether set objectives have been obtained and thus assess the quality of care delivered.'

Medical practice has many facets, each of which may be capable of being audited. In reality, doctors resort to audit frequently and continuously, often subconsciously. The constant query, is it worth it—sums up the purpose of informal audit. In contrast, formal audits are meant to examine many practices that are taken for granted. As medicare and health delivery systems have become progressively more technical, expensive and complex, the medical administrator has to rely much more on scientific methodology and decisions have to be objective, need-based and cost-effective. With this, the expectations of the patients have increased, especially if they have to pay for services. An increase in the accountability of doctors naturally follows from this.

Although these reasons have their parallel in other disciplines, medicine is perhaps unique in that audit and introspection are not the responsibility of the administrator alone but that of every health worker.

The components of audit can be divided into three main categories:

Audit of structure, which deals with health facilities per se and their distribution, adequacy, etc.

Audit of process, which involves the use of indices to determine the actual performance of a facility.

Audit of outcome, which looks at the result of the structure and process, for instance, did the patient's condition improve or not.

Audit within the health care delivery system in India should specifically deal with the following:

1. Economics of health delivery: despite what has been said about the financial crisis in the country, the fact that the cost of medical treatment has risen disproportionately to

inflation cannot be denied. Another pertinent example of audit of structure is the duplication of sophisticated medical facilities in large cities which is born out of competition rather than need

2. Record-keeping: there is a growing tendency towards litigation in which case poor record-keeping will prove to be the biggest problem. Further, with increasing computerisation, the necessary discipline to maintain correct records will be of utmost importance
3. Peer review of professional competence: the peer review group would monitor the professional performance of a doctor in tangible terms, such as patient mortality and morbidity, wound infections, etc.
4. Work output: despite a shortage of hospitals in our country, many general hospitals suffer from gross underutilisation of medical personnel

Once the subjects for audit have been defined, certain points have to be kept in mind while determining how to make audit more comprehensive. The responsibilities of answerable staff must be clearly defined at the outset; those selected for the peer review committee must accept and conform to the rules laid down; the audit patterns must be regular and sustained; all accountable workers should be audited; the audit process must be provided to health workers; participation must be complete; adequate and cogent documentation of the outcome is essential; and, the audit process itself must be audited and modifications made if necessary.

A major result of such audit has been the clear and categorical identification of *iatrogenic* (drug-induced) illnesses. A study of intensive care units (ICUs) was also conducted to rationalise the fee structure for the same. The gross misuse of intensive care emerged from this. Although ICUs should ideally be reserved for those patients in shock, with renal or respiratory failure, or those whose physiological status demands continuous monitoring of vital parameters, it was found that patients were admitted to ICUs because nursing care was better or because complications were expected. The high mortality rate among patients in ICUs may well be because of the condition of these patients or because of the result of hospital-induced infections contracted in the ICU.

There is no dearth of issues to audit though there might be differences among personnel as to who should be responsible for auditing. Traditionally, hospital administrators have been auditing the structure, but with increasing use of technology, the clinician's role in auditing is inevitably increasing. Audits of process and outcome concern doctors, primarily the house surgeons and residents who are directly involved with administering care.

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Women and Health

Introduction

Women, the second sex, the lesser sex, the weaker sex. Disparaging terms no doubt, but terms which constitute the reality with which women are unfortunately faced. Various cultural values have for centuries assigned women a lower status than men in society. The girl child is discriminated against from birth—and indeed, with recent technological advances, even before birth.

The consequences of this inferior status have found expression in several forms—female foeticide, female infanticide, a higher death rate among women, lower life expectancy, lower literacy levels, higher morbidity, lower levels of employment, and an adverse sex ratio. In India, unlike in the rest of the world, the sex ratio is unfavourable to women—933 for every 1,000 males, a ratio that has been declining throughout this century. The 1991 Census, which registers a sex ratio of 929 per 1,000, is an alarming reflection of the worsening status of women in society, despite the rhetoric about the women's decade and the year of the girl child. 'Every year 12

million girls are born; 1.5 million die before their first birthday; another 8,50,000 before their fifth and only 9 million will be alive at the age of 15.' What is startling about these figures in Shailaja Bajpai's report is the fact that it is the result of a conscious gender bias. This gender bias rests in the fact that women are seen as childbearers and little else. Seen more as a liability than an asset, little time or money is 'wasted' on them. Contrary to popular belief, the gender bias cannot be blamed on economic realities in the country. We cannot argue that women's health is better in the affluent areas and not so where poverty is rampant. In Kerala, for instance, the sex ratio is favourable to women (1,032), while in the Punjab, one of India's most affluent states, it is below the national average (879), a phenomenon that can be attributed to the cultural dogmas among the Jat community. The Jats have one of the most imbalanced sex ratios in the country, largely because their patriarchal system necessitates son preference.

THE GIRL CHILD

When a son is born, sweets are distributed to announce his birth. When a girl is born, the sound of tears rents the air.

Sons are seen as an asset, essential to light funeral pyres, to ensure the continuation of the lineage, and provide economic support to their parents in the latter's old age. The girl is seen as a liability, a drain on the family's resources. Naturally, she herself grows up in this hostile environment with a poor self-image and regards her own daughter in the same light.



'Through a haze of heat and pain, Shushma hears the *daimutter*—another daughter!—and bursts into tears. Throughout her third pregnancy she had fasted and prayed for a son. Burdened by the guilt of having two daughters, she had supplicated every deity. Now, the sound of her mother-in-law's wailing fills the air.'

Today, rejection of the girl begins even before birth with prenatal sex determination tests,

followed by abortions if the verdict is a girl. Those allowed to survive often meet their death soon after by strangulation, drowning, or by being buried alive.

Every year, 1.2 crore girls are born and 25 per cent do not live to see their fifteenth birthday. Those who live are confronted with a world that denies them food, health care, education, employment, and even dignity and respect.

The girl child is given less breast milk and for shorter periods than boys. As a young girl the cause of her malnourishment is not so much the lack of food as lack of access to food. She is given less food, eats last and often gets only the left-overs. The discrimination does not end there. A girl's health is of minor significance, and mortality among girls is higher, reflected in the abysmal sex ratio.

- Girls do not achieve their full height and weight potential
- Their diet is inferior, and more girls than boys in the same age group suffer from malnutrition
- Girls are given less nutritious foods than boys
- Fewer girls than boys receive timely medical attention

As young girls, they assist their mothers in household chores instead of going to school. They are denied schooling and education, for as a liability why should scarce resources be wasted on them? As a result of warped cultural notions—that a girl's place is in the home, helping with domestic or home-based work, that a girl needs 'protection' from the outside world, and that education is a waste—girls constitute more than half the illiterate children in the age group 5 to 9 years and 65 per cent in the 10 to 14 age group.

Young girls do not go out to play. Instead, they augment the family income.

- Between 1971 and 1981, the percentage of working girls increased while that of boys declined

- A larger proportion of girls work in full-time activities, as boys spend part of their time in school
- 40 per cent of the 111 million working children in India are girls

Despite the Child Labour (Prohibition and Regulation) Act of 1986, children, particularly girls, continue to work in hazardous and non-remunerative occupations. The work of girls is usually invisible, located as it is primarily in the domestic sphere which is described as beyond quantification. Girls help with household chores of cooking, cleaning, caring for younger siblings and fetching fuel and fodder. As domestic servants, girls are poorly paid and often work more than ten hours a day. As self-employed rag pickers and paper collectors they are subject to sexual abuse and violence. In several industries like brass work, pottery, gem cutting, fireworks, coil industry, *beedi* and match industries, 90 per cent of the workers are girls but they are paid wages lower than boys and are put on operations which do not require skill development but far greater labour. Female children are rarely employed in large factories, to keep them away from better-paid and skilled jobs. Hence, with no identifiable employer, employed as family labour in most industries, the Child Labour Act fails to cover them within its ambit.

'Fifteen youngsters, including eight girls, were rescued by the Bandhua Mukti Morcha (BMM) from a carpet factory in Mirzapur. They were returned to their villages after two years of captivity during which time they were forced to work fourteen hours a day without wages and only rice and potatoes to eat. They were never allowed out of the building and beaten when they tried to escape. The girls suffered the most as after each attempt they were gang-raped by those in charge—agents, *chowkidars* and other musclemen.'

Her adolescent years are filled with the trauma of early sexual maturity, early marriage, precarious pregnancies and childbirths, when she herself is physically unfit as a result of the double burden—of discrimination and of work.

Despite protective legislation, child marriage is rampant in several parts of the country.

- The 1981 Census revealed the mean age of marriage to be 16.7 years
- In several states girls are married at the age of 10 to 14 years
- Early childbearing in the case of the already undernourished girl child puts her at obstetric risk—her skeletal and reproductive system is immature, leading to complicated pregnancies
- This, coupled with hard physical labour, often leads to death

All this, despite the endless list of Acts—the Sharada Act, the Child Marriage Restraint Act, Property Right Act, Maternity Benefit Act, Anti-Dowry Act...

The year of the girl child has drawn to a close, but her experience remains unchanged. It is evident that laws alone cannot reach the deep-rooted causes of the plight of the girl child. Changes in self-perception, as also changes in attitudes, must be brought about for her to shake off the shackles of discrimination. To do this, our strategies must involve the media, the community, the family, the government and NGOs. We must recognise one fact: that the quality of future generations—both male and female—cannot be realised without first ensuring the all-round health, well-being and dignity of our young girls and women.

Girlhood : A Perilous Path

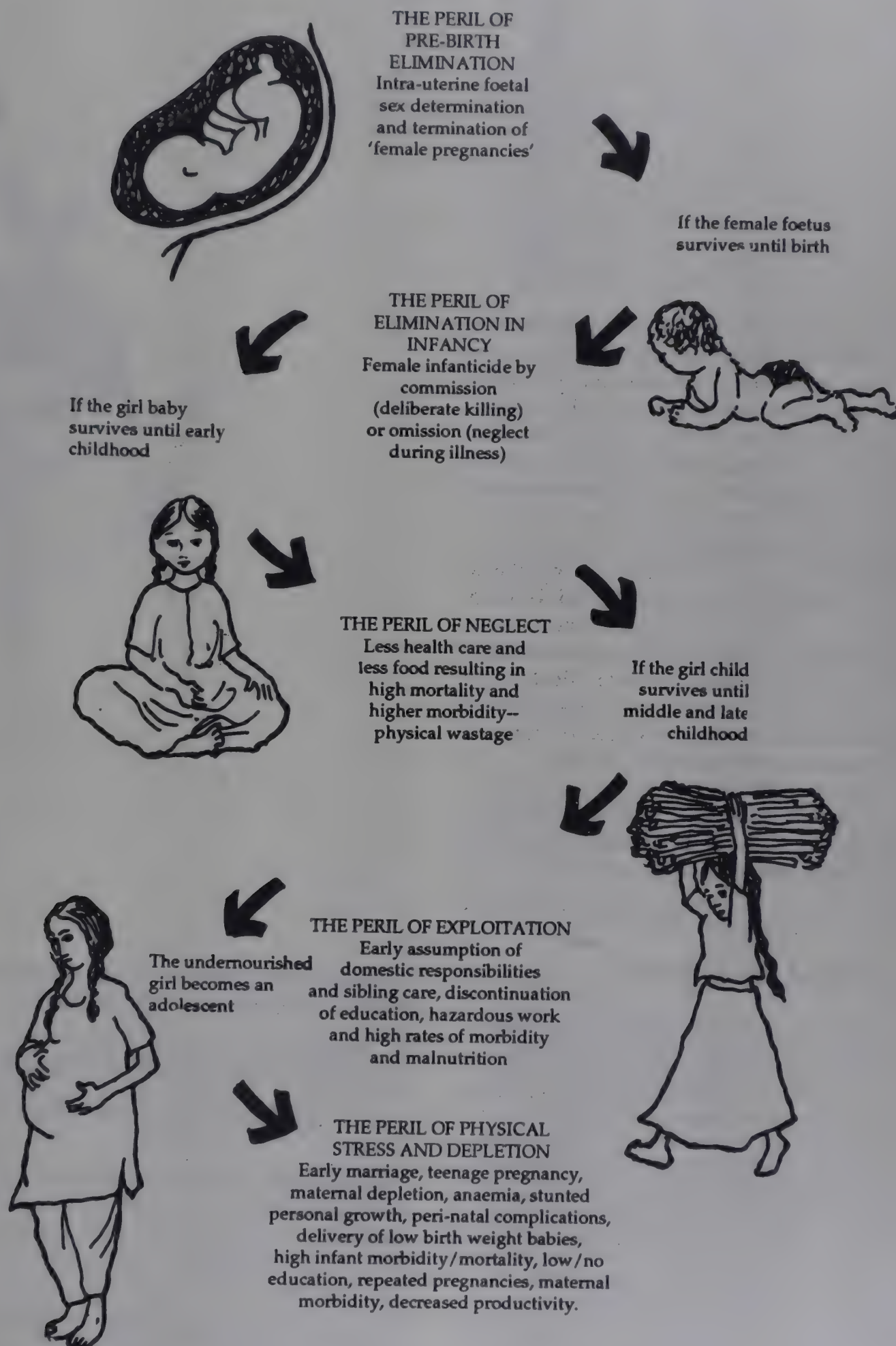


Figure adapted from SAARC Year of The Girl Child, 1990.

Table 1
Sex Ratio in Selected States

INDIA	929
STATES	
Kerala	1032
Orissa	981
Tamil Nadu	977
Andhra Pradesh	975
Karnataka	963
Bihar	946
Gujarat	942
Madhya Pradesh	941
Maharashtra	937
Rajasthan	919
Uttar Pradesh	885
Punjab	879
Haryana	870

Further, the more conservative states—Madhya Pradesh, Gujarat, Uttar Pradesh, Rajasthan, for instance—are found to have a sex ratio more unfavourable to women than the more progressive states of Tamil Nadu, Andhra Pradesh and Karnataka where women are regarded with respect and dignity. In a normal population, i.e., one not affected by under- or misreporting, and where male and female mortality rates are not determined by a sex bias or differential care but by biological factors and the level of public health, the sex ratio at birth is favourable to males. However, biologically, the male child is more vulnerable and this numerical advantage wears out with advance in age. By the age of 30, women outnumber men and this trend continues. In India, however, despite the vulnerability of the male foetus, the reverse is true. Newspaper reports are an indication of how widespread the problem of female infanticide is in India.

If that were not enough, amniocentesis and sex pre-selection tests are being increasingly used to discriminate against females (see section on women and technology). It appears, therefore, that the only context in which

Box 2

FEMALE INFANTICIDE

The Piranmalai Kallar is a tradition-bound community known for its militancy and extravagance in social functions and religious ceremonies. In the face of a depressed economy, their power to spend has reduced drastically, but not their desire to do so. Borrowings from various sources might have helped maintain their image, but has also led to staggering debts. Ceremonies associated with women—at puberty, marriage, pregnancy and child marriage—are now seen as the primary burden and female babies are no longer welcome. Erukkalal milk, arall seeds, pesticides, paddy grains and hot chicken gravy are used to kill these babies within ten hours of birth. The community has its own warped reasoning: female infanticide, they believe, acts against subsequent female births and even ensures the birth of males. Also, the fourth and eighth female child is inauspicious. But, above all, they see female infanticide as an act of mercy, as a means of putting an end to future hardship and misery.



women can be regarded as the stronger sex is that of bearing physical and emotional pain.

Women and Health Care Systems and Services

Traditionally, women as mothers, wives and sisters were the providers of health care within the home. Their knowledge about child care and several home remedies was handed down from one generation to the next, an oral tradition that is part of our societal heritage. However, with the 'pharmaceuticalisation' of health care and the 'medicalisation' of childbirth, women have been relegated to the background. Although almost 75 per cent of our health system workers are women, they are



largely at the periphery. They have no decisive powers, acting only as couriers of a system out of their control. Although 67 per cent of deliveries are conducted by *dais*, they are regarded as untrained health assistants who do not form a part of the 'formal government health structure'. Even trained personnel—nurses, for instance—play a subservient role vis-a-vis doctors and are given little or no support or understanding. Thus, as long as caring, nurturing, nursing and healing were part of satisfying a family's needs, women were regarded as 'wise' and their knowledge and skills respected. Once these activities became associated with profits and economic gains, the medical profession came to be dominated by men and capital-intensive technology. Not only were women marginalised in terms of their role as providers of health, but their own health became the focus of warped and distorted notions. The uterus came

to be looked upon as the source of all their problems which came to be diagnosed as mere 'hysteria'—i.e., uterus-related.

A woman's access to health services is vital. Because a woman has the responsibility of caring for the health of her entire family, her knowledge of nutrition and health is important both for herself and the health of the family. Available studies have shown that households discriminate against girls in terms of health care. Hospital records show more male admissions than female, studies show that girls are taken to less qualified doctors than boys, more money is spent on the treatment of boys, boys rather than girls have access to more timely care, and girls receive less immunising vaccines against childhood diseases. These findings hold true for adults as well.

Women's access to health services is constrained by several factors. First, the time spent on child care, housework and in the occupational sphere leaves them with little time to think about their health, often resulting in their neglecting their illnesses in the early stages. Second, the clinics offer women no privacy. Third, most clinics are staffed by men, and women show a great reluctance to be treated by them. Fourth, the expense and time incurred in travelling long distances and in meeting clinic and drugs fees are also constraining influences. Finally, women's awareness of available facilities—even if they were to use them—is lower than that of men. Despite the fact that women are seen primarily in the role of mothers, several studies have shown that few pregnant women are actually registered at health centres and in fact, the MCH programme has been able to reach out to less than half the pregnant women in India.

New strategies have to be designed to increase women's access to and role in the health care system in order to ensure better health for the woman, as also better child survival. In 1985, the world conference in Nairobi to review and appraise the UN Decade for Women put forth the following recommendations:

- Creating and strengthening basic services for the delivery of health care
- Increasing the participation of women in higher level health institutions through legislation and training
- Integrating fully and constructively female traditional healers and birth attendants into the health system
- Strengthening promotive, preventive and curative health measures through a supportive health infrastructure free of commercial pressure
- Designing and constructing accessible, acceptable health facilities in harmony with patterns of women's work, needs and perspectives
- Encouraging local women's organisations to participate in primary health care activities, including traditional medicine, and devising ways to support women in taking responsibility for self-care

In addition, a special programme of education and training geared especially toward the adolescent girl will, it is hoped, go a long way in redressing past follies and in enabling them to prepare for a better future.

Women and Nutrition

Despite the fact that food production has increased over the decades, malnourishment is a major problem and a majority of Indian women belonging to the lower socio-economic strata are undernourished. Within households, the available food is distributed according to the status of the individual rather than according to nutritional requirements. Women and female children usually receive what is left over. In a study by Amartya Sen and Sunil Sengupta, 'a systematic sex bias was reflected in higher deprivation of girls vis-a-vis boys...at every level girls were systematically more undernourished.' Food taboos, especially those pertaining to pregnant women, further accentuate her already weakened nutritional state:

Taboos	Consequences
If the mother eats more food during pregnancy, the child will get crushed in the womb	This shows their ignorance regarding the anatomy of the human body, thus leading to poor nutritional status

The pregnant woman gets green diarrhoea if she eats green leafy vegetables. These leaves get stuck inside the intestines of the child

These women are thus deprived of green leaves which contribute to the content of iron, a vital component, in a vegetarian diet

Eating peanuts makes the placenta rot and the child gets a white layer on his body

Protein needed for the formation of haemoglobin is thereby lost

Consumption of banana and *ghee* causes the baby to stick in the uterus

The women are deprived of calcium and energy

Curds, butter, milk, lemon and citrus fruits lead to oedema and arthritis

Women become deficient in vitamin C which is essential for blood formation

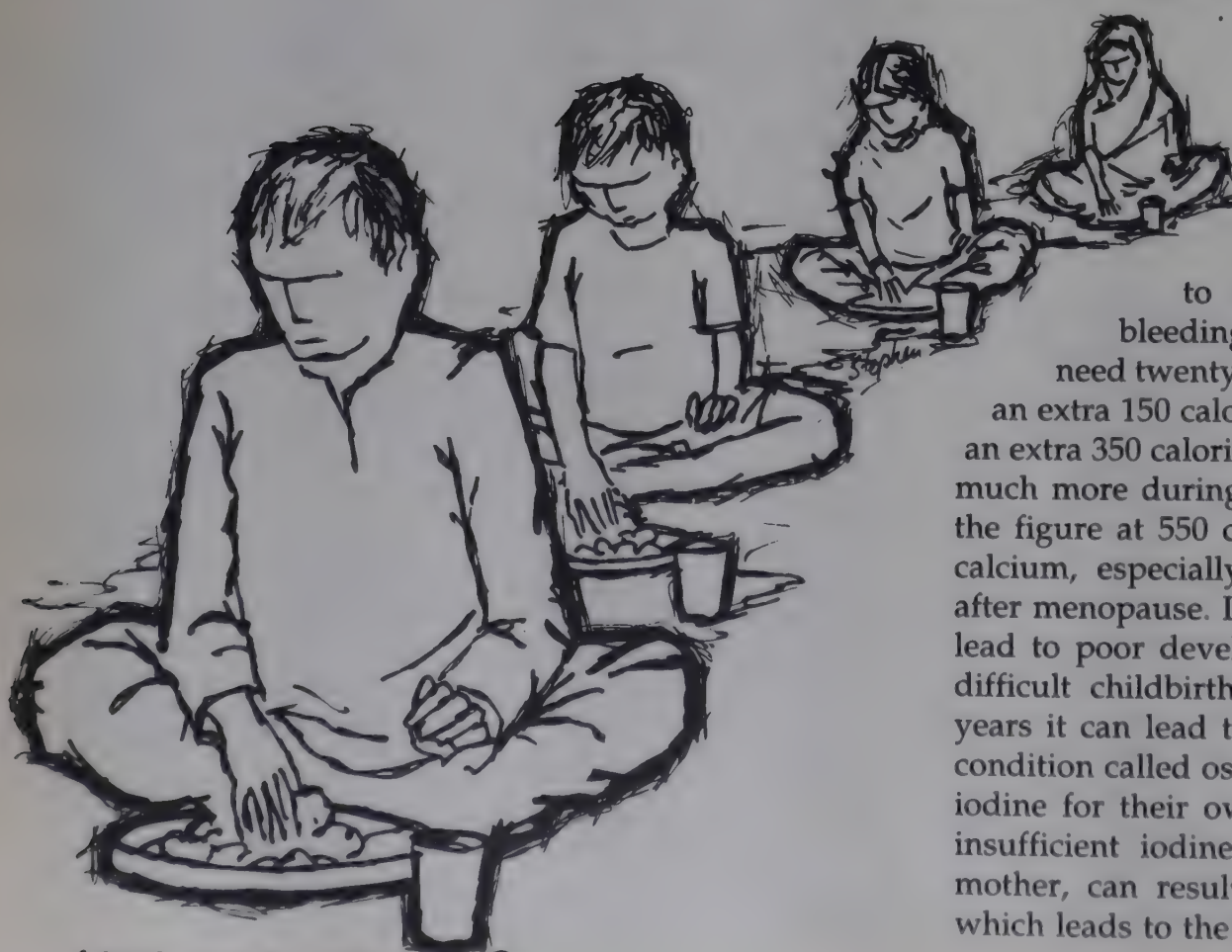
Non-vegetarian food is 'hot'

Women are forced to eat a vegetarian diet which might be deficient in iron content

Pregnant women should not eat pulses as they cause wind in the stomach

Thus her diet remains deficient in protein

Source: Compiled by CHETNA, Ahmedabad.



WHO EATS FIRST?
- A TRAGIC REALITY

Women in general and pregnant women in particular have special nutritional needs. They need three times more iron than men to replace iron lost during menstrual bleeding. Pregnant and breast-feeding women need twenty times more. Pregnancy also demands an extra 150 calories per day in the first three months; an extra 350 calories per day in the next six months; and much more during breast-feeding (WHO estimates put the figure at 550 calories). Women also need sufficient calcium, especially during childhood, pregnancy and after menopause. Insufficient calcium in a girl child can lead to poor development of pelvic bones resulting in difficult childbirth due to obstructed labour; in later years it can lead to frequent broken bones and a bone condition called osteoporosis. Women also require more iodine for their own health and that of their children; insufficient iodine, especially in an already deficient mother, can result in poor foetal brain development, which leads to the birth of cretins, deaf-mutes, mentally

sub-normal children, children with speech defects and defects in coordination and movement.

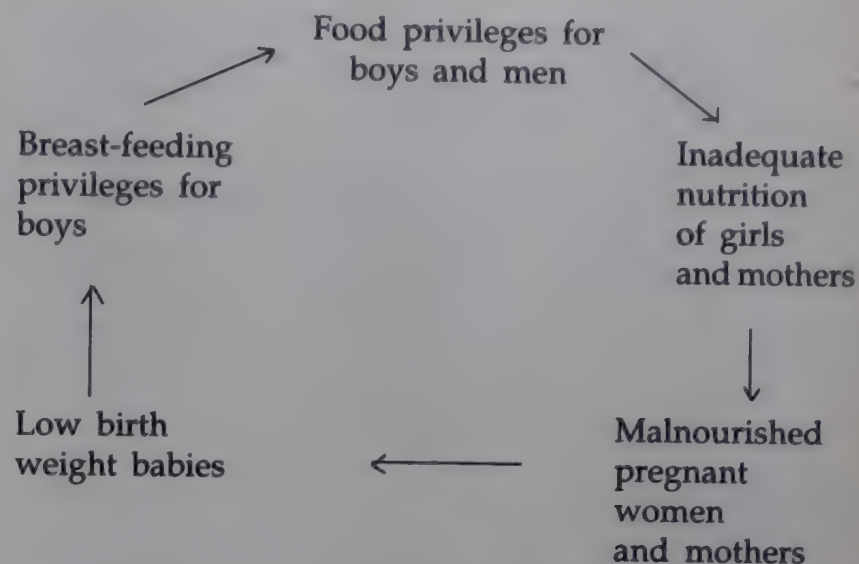
Once a girl child is born, the cycle of undernutrition begins. The female infant receives less breast milk and is fed at longer intervals than boys. As young children girls, along with their mothers, eat last and hence the least. Inadequate nutrition stunts adolescent growth in females, resulting in poorly-developed bones and muscles and low body weight and height. Although the caloric requirement of adults is 2,200 calories, the average intake among men is 1,700 and even lower (1,400) among women. This discrepancy is further sharpened when we recall that the caloric requirements of pregnant and lactating women are even higher.

Thus, undernutrition does not merely make a person tired and weak. It predisposes one to innumerable infections, worsening an already fatigued state. Add to this the heavy burden of work that women bear both within and outside the home.

Studies reveal that women continue hard physical labour till the last stage of pregnancy, in addition to their household chores. Working beyond the limits of physical tolerance, their bodies are depleted of essential resources, thus resulting in foetal wastage and low birth weight babies.

Figure 1

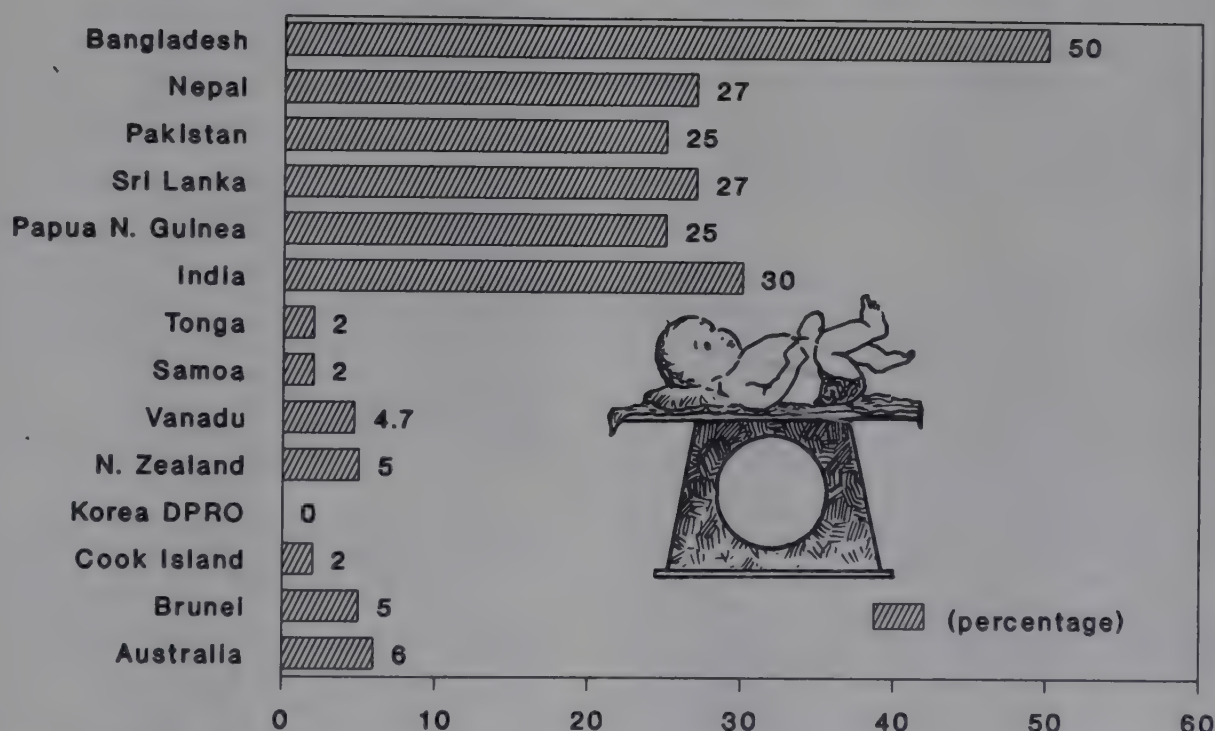
The Cycle of Undernutrition



There are several programmes aimed at addressing the nutritional problems of women:

- Protein-energy supplementation by distributing food
- Nutrient supplementation such as iron folate and iodine in the form of tablets or injections

Figure 2



Source: UNICEF, 1988 Asian and Pacific Atlas of the Children in National Development, Bangkok, 1987

THE POVERTY OF WOMEN

Is it not a paradox that in a society where women are revered as Annapurna, the provider of nourishment, within the household it is they who bear the major brunt of malnutrition. In practice, lofty ideals have not found an image in the attitudes and behaviour of our society. Differentials continue to persist in the care and upbringing of sons and daughters. Indeed, deprivation of women for the sake of her family is glorified.

Throughout their lives females receive less food than do males, both quantitatively as well as qualitatively. The high cultural and economic premium on the male child and the perception of the girl as non-productive and an expensive economic drain, particularly at the time of her marriage, are reflected in the nutritional intake and breast-feeding and weaning practices. Starting with breast-feeding, girl infants receive less milk, less frequently and over shorter periods than their male counterparts.

Low levels of maternal nutrition combined with frequent child-birth harm the whole family. Nonetheless, when the food is scarce, it is often men who get it first, then the children—boys before girls. Women's own quality of life is the lowest priority. It is a societal norm to underestimate activities traditionally performed by women and to overlook the magnitude of burden on them as compared to men. According to a study conducted by ASTRA in 1981, while women average about six hours a day on survival-related and agricultural tasks, men average only four hours a day on the same. Taking into account the time spent on domestic work—cleaning, sweeping, washing clothes and utensils, and child care—and productive work, the study concluded: 'If we disaggregate human energy, the contribution of men, women and children is 31 per cent, 53 per cent, and 16 per cent, respectively (as percentages of total human hours per household per day).'

Most of the energy expenditure of women is on daily, life-supporting tasks which must be performed regardless of season and which are generally not shared by men. The shortage of off-season employment opportunities makes it doubtful that men spend a lot of energy in non-agricultural activities. The total calorie expenditure of men may, in fact, be significantly lower than women.

A study of Ramdasias, a lower socio-economic caste group, and the Jats, a high caste landowning group in Punjab, revealed a highly significant effect of gender on caloric intake among both the communities as a whole and on diarrhoeal infection rates among the better-off Jats, with females having lower intakes and exhibiting higher rates of disease. Among the Ramdasias, discrimination against female children coupled with lower purchasing power meant that young Ramdasias girls had lower caloric intakes, consumed less supplementary food and less solid food as compared to Ramdasias boys as well as Jat children of both sexes. As food resources were not scarce among the Jats, their young girls consumed as many calories and more proteins, iron and supplementary foods than young Jat boys. However, whatever be the economic or social status of the family, the brunt of deficit falls disproportionately on some individuals.

The North-South divide is operational even in the nutritional status of women. The states of north India, where women have traditionally been confined to the inner recesses of their homes, display marked nutritional inequity between the two sexes. In Rajasthan, where female infanticide and the practice of *sati* are part of the social folklore, it is not surprising that females are denied their fair nutritional share. Regions like Gujarat, Maharashtra and the states of south India, where women enjoy a

relatively greater degree of social mobility and interaction, the nutritional status is somewhat better. In the east, the nutritional deprivation of women appears to be economically rather than culturally mediated as work, or rather the conception of it, plays a significant role in female undernutrition.

An in-depth study of two villages in West Bengal demonstrates that the benefits of development are unfairly distributed among males and females. The nutritional status of boys improved, while girls' nutrition remained unchanged. Thus, the economic benefits accrued selectively to boys. Experience shows that in times of scarcity, female access to food is even more circumscribed, and girls suffer from worse forms of malnutrition—and death—much more frequently than boys.

Where females have a high economic status, they may receive a larger share of food and health resources, where their economic value is lower they remain at a considerable disadvantage. Two particular aspects of women's economic value have been related to their survival—their labour force participation and their inheritance of property, including the payment of dowry. One hypothesis suggests that rice cultivation in the southern region of the country generates greater demand for female labour and hence supports higher female survival rates, compared with wheat cultivation in the north.

It is a myth that the fruits of development are justly shared by males and females. Despite agricultural growth and economic development in Punjab, social discrimination against young girls in matters of nutrition has persisted. Selective discrimination is practised against second or higher birth order daughters, particularly among the well-off who aspire to smaller families, so that the demographic transition that has occurred in the region may, in fact, have worsened the status of the female child.

Inadequate nutritional intake and consequently widespread anaemia among women has serious implications for women's productive as well as reproductive 'success', as the relationship between anaemia and work performance on the one hand, and low birth weight on the other, are well-established.

It is indeed a vicious circle: perception of women as the presiding deity of the household, glorification yet underestimation of her activities, nutritional deficit, socio-economic pressures, double energy demands and early, frequent and prolonged childbearing, unbearable pressures generation after generation. The price of modernisation and development are also added to her burden—long treks to fetch water and fuelwood in the event of environmental degradation.

Sources: ASTRA, 'Rural Energy Consumption Patterns—A Field Study', Bangalore, Indian Institute of Science, 1981.

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F.J. Levinson, 'An Economic Analysis of Malnutrition Among Young Children in Rural India', Cornell-MIT International Nutrition Policy Series, Cambridge, 1974.



Box 4

INNOVATIVE PRODUCTION OF EDUCATION MATERIALS TO COMBAT ANAEMIA

In 1984, the Centre for Health Education, Training and Nutrition Awareness (CHETNA) in Ahmedabad, began a project to develop an education kit about anaemia to be used at the community level. This arose from a concern about the high levels of iron deficiency anaemia which contribute to high maternal mortality rates.

The kit was developed through a process of workshop discussions with individuals from organisations active in community health care and women's health care programmes, who suggested suitable educational strategies to combat anaemia and then developed key education messages. Prototype materials were prepared, reviewed by technical experts, field-tested at the community level and revised before presentation to and revision at a national workshop of voluntary agencies and communications experts. The Director of CHETNA describes the kit:

The education kit includes a trainer's manual, which provides an overview of iron deficiency anaemia. The anaemia kit used songs to reach young women. A song was also used to reach mothers-in-law—who control the distribution of food in the household and who decide what kinds of food and how much the daughters-in-law may eat. Since this is a sensitive issue, the song helped to present the information in a manner that would not antagonise anyone.

The kit includes a booklet that describes in story form some of the practical day-to-day problems that women in rural areas face regarding diet and health. Window charts, games and posters are part of the kit which is produced in Gujarati, Hindi and English.

Source: *Asian and Pacific Women's Resource and Action Series—Health*, 1989.

- Food fortification by adding nutrients to processed foods like flour which people regularly consume
- Home gardening
- Nutrition education
- General health care such as preventing parasite infestation and promoting family planning

Several voluntary organisations have also tried to implement innovative strategies aimed at ameliorating the nutritional status of women. The project on anaemia education by the Centre for Health Education, Training and Nutrition Awareness (CHETNA) is a case in point.

Maternal Mortality

Poor nutritional status—and its concomitant problems of poor body weight and height, poor weight gain during pregnancy, low haemoglobin levels—is one of the primary underlying causes of maternal mortality in India.

Magnitude of the Problem

More maternal deaths occur in India in one week than in all of Europe in one year. In a single day in India, the total number of casualties due to pregnancy and childbirth-related complications is more than that recorded in one month in the entire developed world.

Table 2
Maternal Mortality

India	500/100,000
Tunisia	310/100,000
Ecuador	210/100,000
Kenya	190/100,000
UK	11/100,000
USA	10/100,000
Sweden	1/100,000

Source: *Women, Health and Development*, UNICEF, 1983.

Table 3
Estimated Lifetime Chance of Dying from Pregnancy Related Causes, by Region, 1975-84

Region	Lifetime chance of maternal death
AFRICA	1 in 21
ASIA*	1 in 54
SOUTH AMERICA	1 in 73
CARIBBEAN	1 in 140
NORTH AMERICA	1 in 6,366
NORTHERN EUROPE	1 in 9,850

* In India, a woman's chances of dying during pregnancy are 1 to 18.

Source: Calculated by Dr Roger Rochat, Emory University School of Medicine, using data on maternal mortality rates from the World Health Organisation and total fertility rates from the Population Reference Bureau. In Barbara Herz and Anthony R. Measham, *The Safe Motherhood Initiative: Proposals for Action*. Washington, D.C.: the World Bank, 1987.

Figure 3

ESTIMATES OF MATERNAL MORTALITY BY REGION

Region	Number of maternal deaths (thousands)	Maternal mortality rate (per 100,000 live births)
AFRICA	150	640
North	24	500
West	54	700
East	46	660
Central	18	690
Southern	8	570
ASIA	308	420
West	14	340
South	230	650
Southeast	52	420
East	12	55
LATIN AMERICA	34	270
Central	9	240
Caribbean	2	220
Tropical	22	310
Temperate South	1	110
OCEANIA	2	100
DEVELOPING COUNTRIES	494	450
DEVELOPED COUNTRIES	6	30
WORLD	500	390

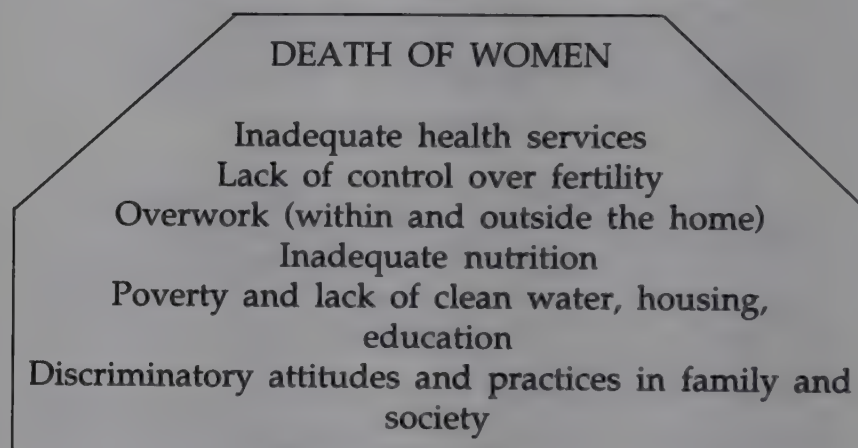
Source: *Maternal Mortality Rates: A Tabulation of Available Information*.
Geneva: World Health Organisation, 1985.

The real extent of maternal deaths is often hidden as most estimates are based on registered hospital deaths where causes may often not be mentioned. This under-reporting and under-recording conceals the actual number of maternal deaths in India.

Causes Behind High Maternal Mortality Rates

The causes that lead to the unnecessary deaths of so many women, most in the prime of their lives, originate long before their pregnancies, and extend far beyond the realm of medical care. They are the result of a complex interaction of factors rooted in the social and economic contexts in which Indian women are placed. Thus, apart from the immediate causes of maternal mortality, the long chain of invisible causes behind those which are most apparent, need to be examined more closely.

Figure 4
Factors Leading to Maternal Deaths



In addition, it is estimated that for every death, ten to fifteen women are handicapped in one way or another. Constant discharge of urine from the vagina, infections of the genital tract and utero-vaginal prolapse (protrusion of the uterus from the vagina), are only some permanently debilitating symptoms that arise from complications during pregnancy, childbirth and abortion. Although these are more rare problems, that of cervical tears is more common.

Generally, malnourishment, poor medical facilities and unfavourable social conditions are the major underlying causes for high maternal mortality. Nutritional anaemia, a serious problem in pregnancy, affects 50 per cent of the women of childbearing age in Southeast Asia. A severely malnourished woman is at higher risk on two fronts: she is more susceptible to miscarriages and stillbirths, and to excessive bleeding and infections. This means that she has to go through about eight pregnancies to have five live births (of which only three or four may see adulthood), exposing herself to potentially grave consequences each time. For instance, if an anaemic pregnant woman haemorrhages, her chances of dying are great unless there is immediate and adequate blood transfusion. Blood loss of about 600 ml is considered dangerous amongst normal pregnant women but an anaemic pregnant woman cannot even sustain a loss of 250 ml of blood. Such problems are compounded by the prevalent

norms of early marriage. Not only does this lead to early childbearing, but puts the young mother at risk of obstructed labour and often death, because of the size of her pelvic outlet.

Box 5

MAIN CAUSES OF MATERNAL DEATHS

Anaemia

- 60 to 70 per cent of pregnant women are anaemic with Hb levels less than 10gm. 15 to 30 per cent of all maternal deaths are due to anaemia

Height

- 15 to 20 per cent of Indian women are shorter than the WHO minimum of 145 cm and hence are at risk of death due to obstructed labour

Weight Gain

- Women in developed countries gain on average 10 kg during pregnancy. In India women from the lower socio-economic strata gain only between 3 to 5 kg

Dietary Deficiency

- Pregnant women have been found to be deficient in their intake by 1,100 calories and lactating women by 1,000 calories

As in most developing countries, sepsis, haemorrhage and toxemia are the major killers during pregnancy and childbirth. Despite the sizeable under-reporting that is to be expected, complications caused by clandestine abortions also emerge as an important cause of death. According to one study, abortions still account for about 10.7 per cent of pregnancy-related deaths. Although the Medical Termination of Pregnancy Act has made abortion legal, 4.6 million women still entrust their lives to quacks. Clandestine abortions are resorted to more by women from poorer households, especially by women above 35 years of age and/or with five or more children.

Infectious diseases such as hepatitis also contribute significantly to maternal death. Tuberculosis and malaria become particularly serious during pregnancy. Widespread infections in the genital tract lead to further complications. Many of these infections are related to improper hygiene during menstruation, childbirth or abortion. Cervical cancer is also related to improper hygiene. Because the genital tract is open during pregnancy, infective organisms can enter more easily into the uterus from the environment, unsterile instruments and objects, the hands, or even from other infected sites in the woman.

The difference that proper facilities can make at the time of birth is evident from the difference in conditions between Uttar Pradesh and Kerala. Since only 4 per cent of births are attended by trained midwives in the former, compared to 53 per cent in the latter, Uttar Pradesh continues to struggle at the higher ends of both maternal and infant mortality rates while Kerala boasts one of the most spectacular success stories of the developing world.

Table 4

Percentage Distribution of Deaths by Causes Related to Pregnancy and Childbirth (1981-1987)

Causes	1981	1982	1983	1984	1985	1986
Abortion	13.7	10.1	10.7	10.8	11.5	8.0
Toxaemia	8.0	12.5	12.1	10.8	6.7	11.9
Anaemia	17.7	24.4	18.9	23.3	23.1	17.0
Bleeding of pregnancy and puerperium	23.4	26.2	23.5	18.8	15.9	21.6
Malposition of child leading to maternal death	9.2	7.2	8.3	6.2	7.7	6.2
Puerperium sepsis	13.1	8.3	11.6	10.8	13.9	13.1
Not classifiable	14.9	11.3	14.6	19.3	21.2	22.2
Sample no. of deaths:	175	168	206	176	208	176
% of total deaths:	1.0	1.0	1.2	1.0	1.2	1.0

Source: Registrar General, *Survey of Causes of Deaths (Rural)*, 1984 and 1987.

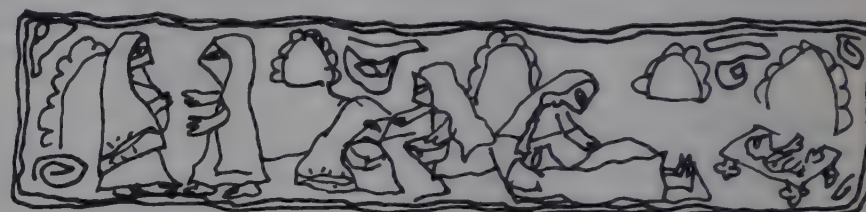


Table 5

Distribution of Deaths During Pregnancy and Childbirth by Specific Causes and Age Group

Causes	15-24	25-34 (% deaths 1987)	35-44	All ages
Abortion	40.0	46.6	13.4	100
Toxaemia	46.2	46.2	7.6	100
Anaemia	31.4	31.4	37.2	100
Bleeding of pregnancy and puerperium	43.6	47.3	9.1	100
Malposition of child leading to maternal death	35.0	35.0	30.0	100
Puerperium sepsis	23.8	61.9	14.3	100
Not classifiable	29.9	57.9	13.2	100
By Age Group				
Abortion	8.6	7.6	5.7	7.6
Toxaemia	8.6	6.5	2.9	6.6
Anaemia	15.7	12.0	37.1	17.8
Bleeding of pregnancy and puerperium	34.3	28.3	14.3	27.9
Malposition of child leading to maternal death	10.0	7.6	17.1	10.1
Puerperium sepsis	7.1	14.1	8.6	10.7
Not classifiable	15.7	23.9	14.3	19.3
All causes	100	100	100	100

Source: Registrar General, *Survey of Causes of Deaths (Rural)*, 1984 and 1987.

MATERNAL HEALTH PROBLEMS

<i>Maternal health problems</i>	<i>Results</i>	<i>Prevalence</i>
Complications of childbirth: infections, eclampsia (convulsions), slow labour, malpresentation, multiple placenta, eclamptic toxæmia, ruptured uterus, placenta previa, etc.	Many complications can lead to maternal and/or infant death	Complications arise in perhaps 10 to 20 per cent of deliveries
Hypertensive disorders of pregnancy (e.g., toxæmia, high blood pressure)	Highly correlated with birth complications Associated with foetal deaths and low birth weight babies Oedema (swelling) and other symptoms cause discomfort	Affects over 20 per cent of pregnant women in developing countries
Maternal malnutrition	For mother, leads to fatigue and weakness and may lead to susceptibility to infections, insufficient lactation (breast milk), and maternal mortality	Affects the majority of women in many poor areas to some degree
Anaemia (mostly iron deficiency)	Causes fatigue and weakness if severe, can predispose maternal death during childbirth from heavy bleeding or heart failure	Affects an estimated 65 per cent of pregnant women and 50 per cent of non-pregnant women in developing countries
Complications of abortion	Maternal death in many cases	Cause of 30-50 per cent of maternal deaths in Latin America; significant cause in other areas
Ectopic pregnancy (pregnancy in the fallopian tubes)	Without surgery and blood transfusions, leads to maternal deaths	This is an important cause of maternal deaths worldwide It is 6-10 times more prevalent in women who have had pelvic inflammatory disease (PID) [infection of the uterus and fallopian tubes]
Female circumcision	Scar tissue may lead to obstructed labour and maternal and infant death	This is a significant problem where circumcision is prevalent
Discomforts of pregnancy such as nausea, fatigue and swelling	Varying discomfort among pregnant women to some degree	Affects many pregnant women
Sexually transmitted diseases (STDs)	Gonorrhoea can lead to infertility and concomitant psychological problems for women, especially where their childbearing role is highly valued Increased risk of cervical cancer, ectopic pregnancy, and PID	Infertility rates vary greatly: they are very high in parts of Africa but are mostly due to post-partum and post-abortion infections rather than STDs STDs prevalence unknown but of great concern in some areas; rates appear to be increasing worldwide

Low birth weight babies

For foetus or infant, gonorrhoea can lead to blindness, syphilis, to spontaneous abortions, stillbirths, prenatal deaths, deformations (deformities), etc.

These babies have very high rates of infant morbidity and mortality

Varies substantially; quite common among poor mothers in developing countries

Source: *Asian and Pacific Women's Resource and Action Series. VHealth, 1989.*

Thus, the high rate of maternal mortality in India does not merely reflect the abysmal conditions of services which are supposed to ensure safe childbirth and care during pregnancy. It indicates as much the chronic neglect of women since childhood and the pressures on them. It is linked as much to nutritional status as to literacy, age at marriage, and birth spacing. The greatest tragedy of all maternal deaths is the fact that most such deaths are preventable.

The nexus between literacy—another area where women are at a disadvantage—and maternal mortality can be clearly seen in the case of Kerala which has the highest female literacy rate—leading to later marriage,

later pregnancy, fewer children and greater life expectancy.

It is only in the past decade that maternal mortality has been recognised to be a compelling problem in the Third World, demanding immediate attention and action. The main reason why this area did not receive due attention was that sufficient information did not exist on the causes of death and associated factors. A recent global effort was the Safe Motherhood Conference held in Nairobi, Kenya, in 1987, co-organised by WHO, UNFPA and the World Bank, in which representatives from forty-five countries participated.

Box 6

SAFE MOTHERHOOD

The goal of the conference was 'not only to draw attention to maternal mortality, but more importantly, to mobilise immediate and concerted action at the national and international levels to prevent the continued tragedies.'

Action to be Undertaken

- We need to generate the political commitment to reallocate resources to implement the available strategies that can reduce maternal mortality by an estimated 50 per cent in one decade
- We need to remember that the industrialised countries faced this challenge in the past. For some the change has taken place in our lifetime, through dedication and the re-allocation of priorities
- We need an integrated approach to maternal health care that makes it a priority within the context of primary health care services and overall development policy
- We need to reach decision-makers in family and government to change laws and attitudes, and to improve the legal and health status of women generally, especially in areas such as adolescent marriage and restrictions on health care delivery
- We need to mobilise and involve the community and particularly women themselves in planning and implementing policies, programmes and projects, so that their needs and preferences are explicitly taken into account
- We need to utilise a range of information, education and communication activities to reach communities, women, men, boys, and policy-makers, through the media and all culturally appropriate channels
- We need to carry out additional studies to gain better

country- and locale-specific information on maternal mortality—its immediate causes, which we know, and its root causes, some of which either we do not know or we ignore

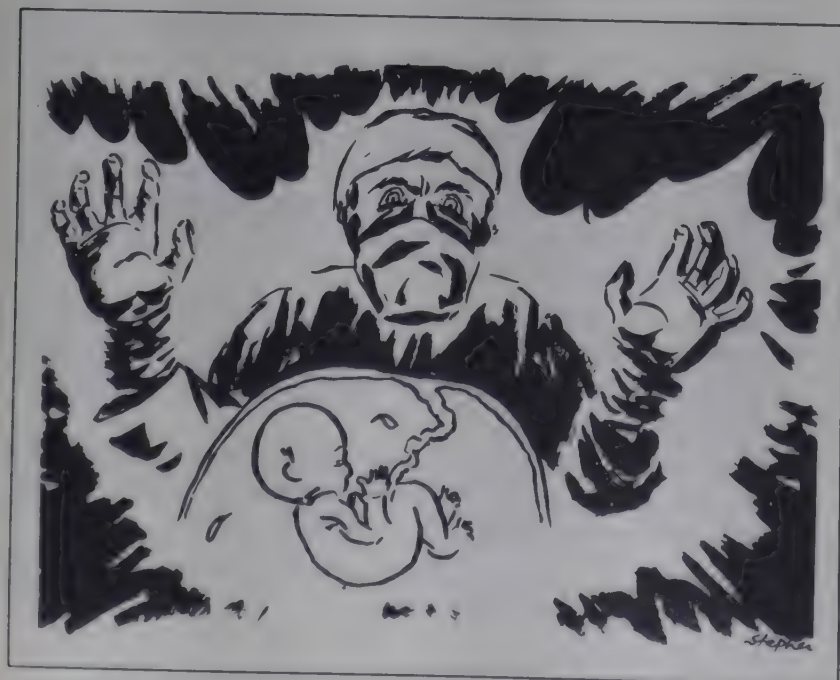
- We need to have on-going operational research and evaluation activities to assess the effectiveness of various programmes
- We need to expand family planning and family life education programmes, particularly for young people, and make services for planning families socially, culturally, financially and geographically accessible
- We need to use appropriate technologies at all levels so that women have better care at lower costs
- We need to strengthen community-based maternal health care delivery systems, upgrade existing facilities, and create relevant new ones if necessary
- We need to ensure that pregnant women are screened by supervised and trained non-physician health workers where appropriate, with relevant technology...to identify those at risk and to provide prenatal care and care during delivery as expeditiously as possible
- We need to strengthen referral facilities—hospitals as well as health centres—and locate them appropriately. They need to be equipped to handle emergency situations effectively and efficiently
- We need to implement an alarm and transport system that ensures that women in need of emergency care reach the referral facilities in time to be helped

Source: Taken from *Asian and Pacific Women's Resource and Action Series—Health, 1989.*

China has been very innovative in its use of both modern and traditional systems of medicine to provide health care using minimal resources and appropriate technology. But what stands out most of all in this effort is the will and persistence on the part of all levels of the community to change the situation. Sri Lanka too has achieved a decline in maternal mortality from 150 per 100,000 live births in 1971 to 60 in 1985.

It appears that the first step is to recognise that deaths among women due to pregnancy and childbirth are a serious problem. Improving registration, and recording of maternal deaths is therefore vital and the implementation of this needs to be monitored by women's groups. But any future planning rests on a complete knowledge about adult and adolescent women, their food consumption patterns and nutritional status, development activities for women, and how far these have helped improve their health. Because discrimination in all spheres begins at birth, there is an imperative need to focus on the girl child, and quell the apathy regarding her health needs. This can only be achieved by first changing deep-rooted societal attitudes, and through health education and other programmes directed to reach the adolescent girl.

In India, the death rate of women in the reproductive age exceeds that of their male counterparts. The cumulative effect of poverty, undernutrition and the neglect of the girl child in all spheres is reflected in poor body size in adulthood, often resulting in complications during pregnancy and childbirth, and high maternal and infant mortality. Add to this their inability to rest, eat well or receive proper medical attention during the antenatal and post-partum phases. The 'depletion syndrome' which sets in contributes to the high incidences of maternal morbidity and mortality. Thus, all development programmes must include adolescent girls to prepare them for safe motherhood. This is not to reiterate the deep-rooted view of women as mothers alone, but an attempt to address the stark reality that in the face of such diverse odds, women themselves must be prepared to be their own support.



Women and Medical Technology

From time immemorial, medical technology for women has been hazardous, often drastic and barbaric. Backaches and indigestion were once treated with the application of leeches on the vulva and cauterisation of her female parts. Female castration was the remedy for problems diagnosed as erotic tendencies, masturbation, persecution mania, attempted suicide and dysmenorrhoea. Medical technology, with its old and new reproductive methods, has not remained idle since, and in fact might well eliminate the female sex altogether. Once, sex determination tests—amniocentesis—were carried

Box 7

SEX DETERMINATION TESTS:

Indian industry, commended for its spectacular growth. The Indian space research programme, marvelled at. Indian trade, growing by leaps and bounds. Increasing computerisation in every walk of life. Juxtapose this technological advancement with the stark fact that between 1978 and 1983 alone, as many as 78,000 female fetuses were aborted after their gender was established through various sex determination tests like amniocentesis.

A recent M.Phil. thesis entitled, 'The Silent Deaths: A Study of Female Foeticide in Delhi' by a Delhi University scholar, focused on the rampant nature of this practice in the capital, and highlighted the brazenness with which several clinics are propagating and conducting sex determination tests, followed by abortions if the result shows a female baby.

The study was carried out primarily in two sex determination clinics, one in West Delhi and the other in a South Delhi locality. Their advertisements themselves are a social comment. 'Pay Rs 500 now or pay Rs 5 lakhs later'. The researcher chose 100 women undergoing the test and seven doctors performing them and spoke to them at length, touching on every facet of the issue.

Delhi, the findings revealed, has become a major centre for these sex determination tests. A large majority of the clients came all the way from Uttar Pradesh, Haryana, Madhya Pradesh and even Dubai and Yemen, to ascertain the gender of the foetus that they were carrying. As was to be expected, most of these women were not eligible for the sex determination tests as neither were they above 35 years of age nor did they have a history of three or more spontaneous abortions or chromosomally defective children.

Surprisingly, most of the women clients and their husbands were highly educated, a rather depressing fact as obviously education does not necessarily bring about progressive attitudinal changes in people.

Though the doctors performing the tests and subsequent abortions claimed that they chose only those women who had had two or more daughters, this claim was proved false as the researcher found that several of the women who opted for the test already had a son.

Most of the women clients were not even aware of the names of these tests, their implications, the procedure and the health hazards involved. For them, it was just a 'boy or girl' test.

The study also discovered a sinister nexus between physicians,

out to detect foetal abnormalities. Today, amniocentesis is being done to detect the sex of the unborn child and abort it if it is found to be female (see box). Sex preselection techniques are becoming even more popular, as they allow couples to choose the sex of their child before the woman becomes pregnant (see box).

The debate about sex preselection is closely linked with the debate about abortion. Abortion has been legalised in India under the MTP Act—not so much out of a concern for women's rights as one more method of population control. While abortion on medical grounds or following rape can be justified, its rampant misuse as a family planning method cannot be encouraged. Health personnel and others are increasingly concerned at the alarming incidence of deaths due to illegal abortions,

LICENCE TO KILL?

sex determination clinics and abortion centres. Most couples undergoing sex determination tests had been advised these tests by their own physicians, the latter even recommending specific clinics in several cases. The clinics in turn referred their women clients to a particular abortion centre. The organised network operates on a commission basis.

The reasons cited by the women for their preference for a son rather than a daughter were predictable. 'Society taunts me about my not having a son so far', some said. Others pointed out the need to 'balance' their families, which already had a daughter, with a son. Interestingly, families which had only sons did not feel the urge to 'balance' them with daughters.

Eighty-three per cent of the women were aware of the fact that abortion on the grounds of sex is illegal. Although the signature of the woman undergoing the sex determination test on a consent form is a legal requirement, only three out of the eleven clinics visited by the researcher had these forms. In fact, several women actually suggested that these sex tests be legalised as this technology is a gift of the advancement in science and should be made optimum use of!

The doctors themselves had a high opinion of the 'noble work' that they were doing. They saw sex determination tests as the best weapon to control India's rapidly growing population. Their sexist bias was visible even in the prices charged for the tests. If the forecast was a boy, the charges were Rs 1,000, while the same test fetched Rs 800 if the foetus turned out to be a girl.

Most of the clinics did not have their own facilities to test the tapped amniotic fluid. Despite the Maharashtra government's ban on amniocentesis, it was found that two of the doctors were sending the amniotic fluid to Bombay for sex prediction. The underhand nature of the entire process is further manifest in the fact that none of the clinics gave their clients written reports, nor did they issue receipts for the money charged.

On average, thirty-seven women underwent sex tests each day in seven of the total number of clinics visited by this researcher, which brings us to the staggering figure of 13,505 tests in these seven clinics alone each year.

If a lone researcher with few resources at her command can unearth such facts, surely it is time the government shed its indifferent, apathetic attitude and commissioned a comprehensive enquiry to determine the extent of female foeticide and to work out means of combating it.

Source: Taken from Sharmila Chandra's article in *Indian Express Magazine*, Sunday, 28 October 1990.

Box 8

ERICSSON'S METHOD (SEX PRESELECTION TECHNOLOGY)

This technique, developed and patented by reproductive biologist Ronald Ericsson, involves the separation of X and Y chromosomes in the sperm.

Sperms are placed in a glass column filled with a dense liquid protein (albumin) in which sperms with the Y chromosome (which are related to the conception of a boy) have greater mobility. The Y-bearing sperms, given this advantage, tend to swim faster to reach the bottom and can be separated from the X-bearing sperm.

The process is repeated several times till there is 75 to 80 per cent concentration of Y-bearing sperms. These concentrated sperms are artificially inseminated into the female cervix so that in contrast to the normal probability of 51.5 per cent, the probability of male progeny is increased to 75 to 80 per cent. The insemination is carried out after proper monitoring of the ovulation cycle. If a woman is in her late reproductive cycle, she will have to undergo certain procedures to clear her tubes or will have to try several times. With the societal pressure on a woman to bear a son, this is costly both in terms of money and physical and mental anguish.

often in the most unhygienic conditions. While 6 lakh women are stated to be dying due to illegal abortions, the number of deaths due to so-called legalised abortions is not known.

Let us not forget that the fight is not against technology per se, but the exploitative social structure that seeks to control women's minds and bodies.



Childbirth

Today, although the majority of childbirths in India still take place in villages at the hands of so-called 'untrained *dais*', the modern medical system is rapidly taking over. Sedation, induction of labour, superficial interventions like episiotomies, increased use of forceps and Caesarian sections are fast becoming normal procedures, apart, that is, from other costly and unnecessary tests like ultrasounds and amniocentesis.

Childbirth practices are not designed with the mother in mind. The lithotomy or dorsal position in which a woman gives birth decreases the normal intensity of contractions, inhibits the mother's voluntary efforts to push the baby out, and obstructs the spontaneous expulsion of the placenta. This results in the increased need for the use of forceps, application of fundal pressure on the uterus, forced expression of the placenta often leading to haemorrhage, and increased need for episiotomies because of increased tension on the pelvic floor, and stretching of the perineal tissue.

Induction of labour hinders the normal progress which is unhurried, and hence prevents the mother from being able to withstand the discomfort and pain. Ironically, the much-lauded Laboyer's method of natural childbirth has its roots in India and can be given the indigenous term '*dai* method'. In the Netherlands, where experienced midwives conduct natural home deliveries, there is a lower incidence of birth trauma and infant deaths. Why then are we allowing the modern system to (adversely) take over women's health? It is no longer the 'mother delivering the child as naturally as possible, but the doctor delivering the child caught up in the contradictions of the medical system.'

Similarly, while the once-popular method of placing premature babies in incubators is giving way to the kangaroo method in which the mother's body helps maintain the newborn's temperature, our dependence on incubators appears to be increasing. Large hospitals often separate the newborn from the mother immediately after birth to a nursery. Not only does this affect the feeding of the child, who can be fed only at fixed times, but also alienates the mother from her child. As a result, women often have problems lactating and babies contract gut infection. Although many hospitals have discontinued this, the process cannot be fast enough.

The food industry is also to blame for weaning babies away from the breast towards artificial and commercial foods. Often, the poorest women are the victims, who first buy these products out of scarce resources and then dilute the food with water to make it last as long as possible. Furthermore, the water they use to dilute the milk and wash the nipple and bottle is often contaminated, thus leading to severe diarrhoeal infections and even death. The incidence of diarrhoea among such infants is ten to twelve times greater. Once again, it was



a network of women's organisations that formed IBFAN—International Breast-feeding Action Network—and forced medical establishments and the WHO to take note of the fact that women were being victimised at the cost of their own and their children's health.

Thus, priority to safe motherhood has tragically not arisen out of a genuine concern for women but out of an epidemic of workshops and seminars. Will this suffice if attitudinal changes do not take place, if women continue to be ascribed a low status, and especially if men continue to dominate the decision-making process both within the home and at the level of policy formulation?

Until women have better access to health care, as also access to better health care, unless the system can ensure the survival of children (to convince women of the need for less children), unless women have access to education, their plight will be difficult to ameliorate. Kerala should serve as a model to enhance women's health and status. Yet, it is once again women's groups alone which



are raising their voice on the issue of biased policies and decision-making.

The new reproductive technologies which are fast gaining ground today are equally degrading for women. They are primarily post-natal technologies, many of which were introduced as a therapeutic cure for infertile women.

AID — Artificial Insemination of Donor Sperm

AIM — Artificial Insemination of Husband's Sperm

IVF — In Vitro Fertilisation

IVF ET — In Vitro Fertilisation and Embryo Transfer

GIFT — Gamete Intra-Fallopian Technique

These techniques are beyond the reach of most people. Yet, because of our patriarchal society in which the son is seen as critical, even those who can least afford to will try every means to be able to use these NRTs. Women's groups are rightly questioning the ethical, legal, social and economic implications of such technologies. Just as amniocentesis was initially promoted to detect birth

defects, NRTs were introduced as an answer to infertile mothers. Adoption, unfortunately, has never been seriously regarded as an alternative. This is as much due to the nature of adoption laws as it is to people's attitudes regarding 'someone else's child'. But as amniocentesis has become a sex determination test, NRTs are being increasingly used by fertile couples who wish to rent the womb of a surrogate mother and yet 'own' the baby produced by the fertilisation of 'their' ovum and sperm.

With the introduction of NRTs, childbirth has become yet another business venture, even a profession among some. With the number of couples willing to pay handsomely for the services of a womb, it is no wonder that less affluent women from the Third World are more than willing to become surrogate mothers in the West. Rather than creating an awareness among people that being childless is no sin, that adoption could be an alternative, huge sums of money are being spent on research in the field of NRTs. Unfortunately, IVF centres have mushroomed in Bombay, Calcutta, Bangalore, Delhi and Chandigarh—are they meeting genuine needs or merely doing good business?

Contraception

In this area too, women bear the responsibility, with scientists focusing their research on female contraception and government policy promoting terminal methods involving women. If this were not enough, several contraceptives for women were introduced without adequate trials, and, developed in the West, were totally unsuited to the Indian context. Not only do women in the West have a free and informed choice, but the availability of efficient medical services ensures proper screening to exclude women unsuited for a particular contraceptive, as also proper follow-up to ensure timely treatment in the event of any side-effects.

Women and Unsafe Contraception

The reason for the vigorous promotion of contraceptives is a desire to curb population growth as a corollary to family welfare. In recognition of the Indian social situation in particular, it is the women who are targeted in the campaign to reduce the number of children to be born. Contraception for women is also promoted as a tool to enhance their status by putting them in control over their own bodies and fertility, although the research institutions and drug manufacturers, with an eye to the market conditions, create products and processes which expose women to the ill-effects of not-so-safe contraceptive technology.

By virtue of their social position and mental conditioning, Indian women do not question or contest these experiments which seek to further subjugate them physically and emotionally. The recent controversy

about the ICMR decision to test in the market an abortion pill RU-486 amid a thick veil of secrecy highlights the case for safe contraceptive methods sensitive to the health status of women in particular communities, effects of drugs on them and the medical services available.

RU-486, whose generic name is Mifepristone, is an anti-progesterone which induces bleeding of the uterus in the first two weeks of pregnancy and dislodges the embryo from the womb or prevents its implementation altogether. This chemical abortion technique, being developed since the early 1980s by French researchers, is mainly a substitute for surgical abortions. It is distinct from a contraceptive in that it is clearly an abortifacient, not preventing fertilisation but inducing the termination of pregnancy.

RU-486 is being hailed as a wonder drug that has revolutionised abortion by making it an easy, non-surgical and self-administered procedure. This claim has been contested by several women's groups. They cite the experience of over 5,000 women in France where the drug has been licenced and distributed since 1988 to question the claim of its being a take-home pill, suitable for Indian women.

In France, a woman who wants to take RU-486 is first subjected to a BHCG blood test to decide the level of hormone and an ultrasound examination to check the position of the foetus and ensure that the pregnancy is not ectopic. The woman is also questioned for possible contra-indications like asthma and cardiovascular problems. Two days after taking the drug, she must return to receive prostoglandin as an injection or pessary and remain in the hospital for a few hours until pains and contractions completely cease. Ten to fifteen days later she returns for a compulsory check-up, with either a BHCG or ultrasound examination to ensure that abortion is complete, and if not, undergo surgical procedure.

The critics of RU-486 point out that not only is it a painful, time-consuming and expensive procedure, it causes heavy bleeding for several days, requiring transfusion in some cases, thereby making it highly unsuitable for Indian women who are known to be anaemic. WHO studies confirm that 55 per cent of normal women and 65 per cent of pregnant women in India are anaemic. The average haemoglobin count of the Indian woman is 7, while below 11 is considered anaemic. The experience with IUDs proves that bleeding is worse among anaemic women, thus the risk to life is greater. It can be used only in the very early stages of pregnancy, that is, within seven weeks of conception or within three weeks of the last menstrual period. Indian women are not known to seek abortion in the very early stages, unlike Western women. The legal period for abortion in India is twelve to sixteen weeks and under special circumstances, sixteen to twenty weeks. Neither is it entirely free of infection as fragments can remain and cause infection. Lack of access to medical care, especially

in the rural areas, substantially increases the risk for women. Besides, the question is also what effect the drug will have on the foetus. There is no guarantee that the drug will not induce hormonal imbalances in women, particularly in view of the minimum data available on its clinical success worldwide.

Virtually all the women participating in the French trial reported heavy bleeding that lasted for an average of ten days following the administration of the drug. In combination with prostoglandin, the drug given forty-eight hours later to ensure abortion, is more painful than vacuum aspiration done under local anaesthesia. The *American Journal of Obstetrics and Gynaecology* reported in its April 1990 issue that the failure rate is greater for women with higher body weight, as also with a higher hormone (BHCG) level. It is simply not a case of 'pop a pill and get rid of the unwanted pregnancy' as it is made out to be.

Lack of access to medical services in India and follow-up if the woman does not return makes the wonder drug more than suspect. Not surprisingly, despite the optimism of the person who discovered it, Professor Emile Etienne Baulieu, the head of clinical research at Roussel Uclaf, the French firm that manufactures the drug, Dr Andre Ulmann conceded in an interview that 'There was no possibility of using RU-486 as it is used in France in a developing country. I would, however, like to see a comparative trial in a realistic Third World setting of RU-486 against vacuum aspiration.'

Once accepted, it is not unlikely that RU-486 would be accepted as a major family planning method. Under close supervision, any failure can be dealt with through surgical abortion. Once this drug is openly sold across the counter, rigid controls and immediate, close supervision will no longer apply. The future scenario is quite frightening, especially in a country like India.

Another dangerous contraceptive method, once again for women who are politically less vocal, Norplant, is soon to be introduced in India. Though it is being enthusiastically propagated, there are many safety issues which have not yet been resolved and which might cause serious problems when the technology is put to use. Government family planning programmes tend to favour rapid expansion without acknowledging possible constraints. Norplant was introduced for clinical trials in Bangladesh as early as 1981. However, partly because of resistance from conscious groups, the trial was abandoned.

Norplant is an implant made of a silastic hollow capsule filled with hormone which is placed beneath the skin of the forearm or upper arm under local anaesthesia. The capsule can also be implanted in the thighs or buttocks. But implants placed too deeply under the skin are more difficult to remove. This new contraceptive has been developed by the Population Council, New York, which tested as many as ten hormones to select the most

effective one. The proponents of this system emphasise that Norplant gives protection against unwanted pregnancies for a period of more than five years and is reversible.

According to the *Population Council Manual*, Norplant can be administered under careful medical supervision and there are a number of contra-indications for use. These include: women who suffer from cardiovascular disorders, women with undiagnosed abnormal vaginal bleeding, women with benign or malignant liver tumours and women with known or suspected breast cancer. In addition, recently published WHO guidelines warn that women with certain conditions such as diabetes, anaemia and high blood pressure should receive regular medical check-ups. It has been prohibited for pregnant women and not considered suitable for lactating women. Clinicians also have to consider whether the woman is a smoker or is on any medication.

The most frequently reported side-effects are changes in menstrual bleeding patterns and other 'method-related' complaints like headache, nervousness, vomiting, dizziness, inflammation of the skin, acne, change in appetite, weight gain, breast tenderness, excessive facial hair growth, hair loss, infection, pain or itching at the implant site, and ovarian cysts.

For safe use of Norplant, a fairly high level of training of personnel is required in order to ensure appropriate client selection. While the guidelines provide an import source material, the actual practices of Norplant providers need to be supervised and monitored in order to ensure implementation of these guidelines. In addition, the insertion and removal procedures require hygienic conditions and the side-effects an appropriate referral system. In some cases, a curettage may be indicated for which a woman should have access to specialised gynaecological care. Lack of follow-up can be a problem in Third World countries, where in many cases women are not careful about getting the implant removed after five years of efficacy. This can lead to low levels of progestin, with an increased risk of unwanted, and possibly ectopic, pregnancies.

The extent to which the conditions for safe use can be met differs from country to country, and even within countries. Initial reports from Bangladesh and Indonesia suggest that Norplant delivery programmes are expanding too far and too soon. It is questionable whether the conditions for safe use can be met. In the Indian context, with the emphasis on a target-based approach, Norplant can be extremely dangerous.

Moreover, the WHO guidelines for use are at best 'provisional' and do not comment with authority on Norplant's long-term safety or side not-effects, effects on the unborn child in cases of failure in the method. Norplant studies do not offer much information on the well-being of women. While not considered severe in medical terms, side-effects such as headache, dizziness

and nervousness can affect a woman's well-being considerably, especially when she is unaware of the causes. Pain-killers and anti-depressants can only lead to further medicalisation.

Appropriate use of a new contraceptive technology depends on the context in which the method is used. The long-term health related economic and social consequences of the method must be examined and prerequisites and conditions for safe use must be determined before distributing it on a wider scale. If the method is used in a relatively coercive family planning programme, then a woman's right to choose freely from a range of contraceptives and her right to discontinue the method are likely to be violated.



Norethisterone Oenanthate (Net-Oen) is an injectible form of the female hormone progesterone and is similar to the controversial drug Depo Provera. Produced by a West German, Dr Scherring, it was first introduced in Peru in 1967 but withdrawn from the market in 1971 when pituitary and breast nodules appeared on test rats. However, the drug was reintroduced in the market on the basis of Dr Scherring's conclusion that the findings in the rats were not applicable to humans. In 1983, Net-Oen was available in thirty-four countries, a majority in the Third World. By thickening the cervical mucus, Net-Oen makes entry of the sperm difficult and sterilisation of the ovum unlikely.

The ICMR has been conducting trials in forty-five PHCs attached to fifteen medical colleges in different parts of India. Ninety per cent of the women who participated in the trials in Phase III suffered menstrual aberrations.



Women on Net-Oen are not permitted to breast-feed until six months after delivery, thus making it difficult for women to breast-feed at all. Not only does this increase costs with women having to purchase milk substitutes, the baby too is at risk of diarrhoeal infections and is deprived of immunological protection from colostrum. On the other hand, little is known of the effect on a baby breast-fed by a mother on Net-Oen.

As Net-Oen affects the pituitary as well, several other changes are bound to occur in women—temperature fluctuations, changes in sexual functions and emotional upheavals. The long-term consequences on fertility are also not clear and it is possible that infertility might be irreversible due to atrophy and damage of the endometrium. Even if its contraceptive effect ceases, its other effects might not. The effects of large doses of injectible hormones on malnourished women or women with infections such as TB or hepatitis are also not known.

High doses of estrogen and progesterone in pregnant women clearly showed congenital malformation of the unborn foetus, despite denials by manufacturers. According to Dr Alan Goldman, Net-Oen could have a similar teratogenic effect if early pregnancy is not detected. The Saheli Stree Sanghatan and other petitioners filed a suit in the Supreme Court to stall clinical trials till adequate information on Net-Oen was made available, studies on the effects reviewed, and a debate on rationalising population policies initiated and resolved.

Depo Provera, another long-acting injectible hormone, was introduced in 1967 and tested over a seven-year period on beagle dogs. Two of the sixteen dogs developed malignant breast tumours, but the test results were discounted on the grounds that these dogs were inappropriate models. In 1978, a ten-year study on rhesus monkeys showed that they developed endometrial cancer, but once again, the results were discounted and the public assured there was no risk to women.

What is particularly hazardous about these technologies is the lack of informed choice among women. Unbiased information should be available to the potential user in a language she understands. Dalken shields, produced by Upjohn, were distributed by USAID to women in the developing countries. These were found to be responsible for uterus problems in the users, some of whom filed suits and received compensation. In India, however, lack of information and proper records only ensured that the women suffered in silence and received nothing.

Choices should be available in reality, rather than on paper alone, as is often the case. Many of the long-acting hormones are invasive and interfere with body functions. Yet, they will be actively promoted and marketed as part of the family welfare programme, targets will be sought to be met, and the realistic exclusion of women unfit for these technologies will be overlooked. In the absence of basic health facilities, no effective follow-up will be possible should problems occur.

When the Indira Gandhi government fell in 1977, it was not so much the result of excesses committed during the Emergency as of the sterilisation programme. For the first time men rather than women were the focus of what culminated in a coercive drive. Small wonder then that the focus has subsequently shifted almost completely to women—particularly the poor and inarticulate.

Women's Health Problems

The family planning programme has been allotted large budget allocations at the cost of other aspects of health care.

Dr Rani Bang's study of Gadchiroli has clearly demonstrated this. She found that 92 per cent women suffer from gynaecological diseases that often go undetected and/or untreated. Inadequate treatment in some cases—due to non-availability of adequate drugs—often leads to further complications like chronic pelvic infections, in turn resulting in infertility or ectopic pregnancies—all of which endanger a woman's life. Another common problem among women which is suffered in silence are repeated infections of the urinary tract. Even if adequate drugs are available, the study found, there is no follow-up care or rational management of medication. The increasing problem of sexually transmitted diseases (STD) is a symptom of our troubled times. Health awareness about these problems is lacking, and should

Box 9

A COMMUNITY-BASED APPROACH TO REPRODUCTIVE HEALTH CARE

Maternity care and family planning remain the major concerns of the present-day reproductive health care system in the country, while gynaecological care is, more often than not, neglected. The situation is even more acute in the rural areas where due to social taboos and cultural constraints women do not articulate their gynaecological and sexual problems. In order to develop a community-based approach to comprehensive reproductive care, SEARCH, an organisation based in the Gadchiroli district of Maharashtra, has initiated a programme which does not perceive women simply as mothers but encompasses every aspect of their lives in designing an appropriate health care delivery system.

Life for women in Gadchiroli is very difficult. For four months, most women work in the paddy fields and for the remaining eight months, they survive by selling their labour for daily wages. While a man splurges his wage on alcohol, a woman's daily income is barely sufficient for the family's survival let alone healthy living. Dowry demands and wife-beating are commonplace. The literacy level is exceedingly low and superstitions and taboos about normal bodily functions abound. Communication and transportation are extremely poor. During the rainy season, many areas are cut off for four to six months. The isolation, poverty and the low status of women contribute to manifold reproductive health problems.

The few health care services that exist focus on maternity care and family planning, while there is a desperate need for safe abortion services, care for gynaecological and sexually transmitted diseases and sex and reproductive health education. Unwanted pregnancies and clandestine abortions are major threats to women's health. The health workers in their quest to meet the government targets of acceptors neglect the quality of contraceptive care. Unsuccessful tubectomies or vasectomies, for instance, are not uncommon. Instead of questioning the efficacy of the surgeon's scalpel, the woman's fidelity is suspected and she is forced to resort to 'illegal' abortions. Abortion services are generally provided by some incompetent persons because safe services, though legal, are not available. The district headquarters is the only place where diagnosis and treatment of complicated cases can be provided. Non-availability of female doctors and the distance to the district headquarters compel women to depend on traditional birth attendants (TBAs).

In such a situation, SEARCH undertook participatory research in two villages of Wasa and Amirza to study gynaecological diseases. The people were very enthusiastic and provided space for the operation theatre and celebrated the event with a community dinner. Village leaders and volunteers mobilised all the women to participate in the study which involved a half-hour, in-depth interview about the woman's sexual and reproductive life, physical and pelvic examinations (a first experience for most of them), and various pathology investigations and minor operations like dilatation and curettage (D&C), cervical biopsy, or cauterisation.

About 650 women, aged 13 years and above, with or without gynaecological symptoms, were interviewed and examined. The mean age was 32.1 years and mean gravidity was 3.99. About 55 per cent of women had one or more gynaecological symptoms and the rest were asymptomatic. Ninety-two per cent of the women suffered from one or more gynaecological or sexual diseases and the average number of these diseases per

woman was 3.6. The common diseases were menstrual disorders, psycho-sexual problems, vaginal infections, pelvic inflammatory disease, syphilis, cervical erosion, cervical dysplasia and metaplasia. Ninety-nine per cent of the symptomatic and 84 per cent of the asymptomatic women had gynaecological diseases.

While these diseases may not kill, they do cause immense hardships to women. Difficulty in occupational and domestic work because of chronic backache, foetal wastage or stillbirths, neonatal infections from birth canal infections, anaemia, sterility, sexual problems, anxiety and stress are common. In spite of intense promotional efforts by the state government, the women blamed contraceptive methods for most of their problems. Adolescent sex education and health care are critical needs not yet met by government programmes.

After the study, the SEARCH team undertook a mass awareness building programme. Based on discussions with women's groups in about twenty villages, a cultural fair aimed at bringing about health awareness was designed and taken to eleven villages. It was attended by about 30,000 people. The findings of the study and other issues of women's lives were highlighted through exhibitions, slide shows, contests, plays, songs and demonstration lectures. STDs, sexual and reproductive organs and their functions, and various related health and social issues also formed a part of this educational effort. A play entitled 'When the Husband Gets Pregnant' was immensely popular. In the play, the husband finds himself accidentally pregnant and goes through all the physical and social strains that women normally undergo. Scientific principles behind many so-called 'miracles' performed by village magicians to exploit women were also demonstrated.

As a result of mass participation and popular demand for more health education, a series of three-day camps was organised and women and youth groups were formed for further action on women's health and social problems. These groups have been staging their own plays and a movement against men's alcoholism is emerging. Men in many areas have demanded a similar study of STDs among males as it appears to be a major health problem, both for them and their wives. Signature campaigns were conducted in three villages to voice this demand.

SEARCH trained thirty village-based nurses in diagnosis and treatment of common gynaecological problems to meet the needs of the women who did not know where to seek medical attention in the absence of female doctors, and hospitals which are located far away. These nurses are providing gynaecological care to women in fifty villages. TBAs are also being trained to educate women on sexuality and reproduction. They are also learning simple treatments for vaginal discharge. These female workers, though medically less qualified than male doctors, are closer to the women in the villages and hence are more acceptable. These village-based female workers also refer women to the clinics when the problems require specialised treatment.

The SEARCH endeavour suggests that even in an orthodox society where sexual matters are usually taboo, people can participate in research and action to improve their own reproductive health. Awareness and community activity are essential, along with a simplified and appropriate technology and delivery system.

protests have been launched under the MRTP Act and with the Drug Controller, such products continue to proliferate. The anti-EP campaign against high dose estrogen-progestrone combinations was the first major drug campaign launched in India by women's health and consumer groups. It demanded not merely the withdrawal of potentially hazardous products but highlighted the deficiencies in the drug registration and licencing policy itself. Yet, licences continued to be extended without first reviewing the safety of the drug. It took eight years for the drugs to be taken off the market, reflecting the gross lacunae in the Drugs and Cosmetics Act (1940). Once again, perhaps women's groups along with other concerned health and consumer groups will be able to stall the proliferation of hazardous drugs and address certain pertinent questions: why is most contraceptive research directed at women's contraceptives? Why is the emphasis on injectable hormones when their therapeutic value is in doubt? Why is women's health continually equated with pregnancy and childbirth and other aspects of health grossly neglected?

Health Hazards of Working Women

Invisible Hands. The title of this work, edited by A.M. Singh and A. Kelles-Viitanen, sums up women's work. Women in the developing world spend most of their time working—at survival tasks of maintaining the household and at income-generating tasks, both of which are essential to keep the family and economy alive. The latter tasks for women include a long list of activities—ranging from agricultural produce processing, weaving, spinning, *beedi* rolling, block printing, soap-making, packaging of medicines to running day care centres, typing, etc. A large number of these tasks are performed within the home where women work as piece-rate workers under exploitative conditions. These home-based workers are in fact 'invisible' as their work is not recognised as productive and a majority of them do not appear in census or other official statistics as workers. Low wages, long and erratic working hours, a deplorable working environment, absence of a worker's union, coupled with the several survival and reproductive tasks can only have adverse consequences on women's health.

Subsistence agriculture is almost exclusively the domain of women in developing countries. They are usually responsible for sowing, weeding, crop maintenance and harvesting, tasks more gruelling than those handled by men. Where cash crops are grown, besides mechanisation and the use of HYVs which entail more work for women, they are especially vulnerable during pregnancy to the increased and often injudicious use of dangerous chemicals and fertilisers (for more details

regarding the particular risks to pregnant women see the following table). The intensive use of fertilisers can contaminate the water sources. Furthermore, with increased irrigation the water-table is rapidly depleted, forcing the women to travel long distances in search of water for household consumption. Carrying loads of water weighing as much as 25 kg on the head leads to postural defects, to arthrosis (a degenerative form of rheumatism) or cyphosis (a permanently bent back). Broken bones and fractures, prolapse of the uterus and miscarriages are a few of the other hazards associated with transporting the day's water supply.

Risks for Pregnant Women Workers

<i>Body system</i>	<i>Potential hazards</i>	<i>Some occupations where they might be found</i>
Lungs: Air is breathed more deeply, mixed efficiently. There may be more effective absorption of toxic materials and deeper penetration of harmful dusts.	Toxic gases, fumes vapour. Dusts. Solvents—particularly benzene and other aromatics.	Agricultural workers, dental technicians, dentists. Laboratory technicians, operating theatre personnel, textile workers. Hairdressers.
Blood: Reduced percentage of haemoglobin and iron. There may be an enhanced effect of oxygen-depriving toxic chemicals and conditions.	Aniline dyes and nitrocompounds (methaemoglobin-aemia formers), amines and nitrates. Pesticides.	Dye workers, rubber workers, laboratory workers, laboratory hairdressers. Agricultural workers.
Circulatory Systems: 30 to 40 per cent greater blood volume; expanded blood vessels in legs and uterus; increased heart output; increased body weight.	Standing or sitting too long. Over strenuous activity. Unreasonable lifting and carrying.	Laboratory workers, assembly-line workers. Hotel workers, agricultural workers activity.
There may be a greater effect from jobs involving physical exertion or lack of it.	Stress (including noise and heat stress). Nitrates and other chemicals which affect circulation and heart function. Shiftwork.	Laundry workers, nurses, office workers. Service workers—cleaning and care-taking. Construction workers.

Source: *Asian and Pacific Women's Resource and Action Series—Health*, 1989.



Add to this the arduous task of collecting fuelwood for their energy supply. Often women spend five hours each day in search of fuelwood and carry home up to 35 kg over long distances. Not only is this damaging to the spine but also causes problems during childbirth. Already undernourished, the physical burden of work further deteriorates their health. Where cattle dung and crop residues are the sources of energy, the problems are no fewer. Women spend more time feeding the fire and longer hours cooking. Constant exposure to biomass fuels has devastating consequences—benzopyrene is a by-product of biomass that is expelled in quantities comparable to inhaling the smoke of twenty packets of cigarettes. It has been associated with nasopharyngeal cancer, acute bronchitis and pneumonia, and often death. Women who work in close proximity to chemicals—in



agriculture or in industry—are at severe risk of the process called mutation. Certain chemicals can change the genetic make-up of cells, and mutation in sperm and ovum cells causes birth defects in the unborn foetus, spontaneous abortions and stillbirths. In the families of asbestos workers and those in proximity to pesticides a higher incidence of mesothelioma has been found, indicating that children are not free from harm either.

By increasing the number of wells and water facilities and locating them at a reasonable distance from the home, by actively promoting reforestation with fast-growing trees near the village for fuel supplies, and by introducing light indigenous transport facilities (like carts, wheel-barrow, etc.) for crop, water and fuel collection, perhaps some headway can be made towards ameliorating the plight of the Indian woman.

It has been estimated that 94 per cent of women are engaged in the unorganised sector, 81.4 in agriculture and the rest in other occupations, mostly unskilled and ill-paid jobs. It is unfortunate that the laws and policies (Factories Act, 1948; Mines Act, 1952, etc.) relating to women have been obeyed more in breach than in compliance. Let us not forget that women in this sector do not have a collective voice to press for their rights. A majority of government programmes like IRDP and NREP, for instance, have been able to cover only a fraction of the targeted women. This is not the place to discuss these programmes or their failings in depth. Suffice it to say that although the female workforce in the unorganised sector has been steadily increasing, they are a completely marginalised group. Several studies on women workers have revealed the deplorable conditions under which they work and the impact on their health. Hand-cart pullers were found to suffer from a thickening of the skin of the lower abdomen, a result of the constant friction with the bars of the cart. They were found to be particularly susceptible to abortions, menstrual aberrations and uterine prolapses. In textile mills, the women workers are virtually kept out from the canteen, and are forced to eat their meals squatting on the floor of the workplace, amidst cotton bales, waste materials and dust. In the electronics industry, the majority of workers are women. The nature of work based on an assembly-line system forces them to sit on high stools with no back support for several hours each day. Some industrial units do not have separate toilets for women, while still others limit the number of visits to the toilet—even pregnant women are not exempt! The list is endless.

The consequences on women's health can best be illustrated by an abbreviated version of a table from *Shramshakti*, the report of the National Commission on Self-Employed Women and Women in the Informal Sector. This comprehensive table shows at one glance the startling reality of the hazards faced by women workers.

Although one would imagine that the conditions in the organised sector would be better, the reality is quite the same. A large percentage of the women in the organised

Box 10

EXPLOITATION AT WORK

A marriage, a party, a family get-together, and a joyous celebration. What is common to all these occasions? They draw women draped in exquisite clothing, artfully decorated with shining gold threads. Called Zari or Zardozi, this pattern of fine embroidery work, often interspersed with stones, sequins and glass, is a skill mastered by many men and women, a majority of whom are concentrated in West Bengal and Uttar Pradesh.

It is ironical that the craftspersons who practice Zari live in abject poverty and their lifestyles belie the marvellous pieces of art that they produce. While these workers live in inhuman conditions, the world dons their products, as if in complete oblivion. The factory owners and the middlemen (traders) who run these Zari businesses form a nexus which contributes to the misery of the workers. The women who take to this trade are the worst hit. Let us go back to the shanties which house these artists and take a look into their lives.

The women workers are the prime target of discrimination and the high-handedness of the factory owners and traders. What is most distressing is the fact that a woman worker is paid less than a male worker for the same job. During a survey it was found that for a full working day the minimum wage for men was

Rs 27 and the maximum was Rs 47. In shocking comparison, for a similar job, the women in the same area are paid Rs 8 to 10 for a full day. As if to humiliate them further, the women are often subjected to insulting talk about their lack of competence and ability in comparison to men. In addition, the experience of a woman worker does not add to her earnings. Their wages increase only marginally as they spend more years on the job. The male workers, on the other hand, are accorded equitable treatment and paid more as they accumulate experience. The work conditions are bad enough. In poorly-lit rooms which damage their vision, the women sit on the floor with crossed legs and bodies bent slightly forward. Sitting in this posture for long periods results in backache and other spinal problems. The excessively hot, damp and dusty conditions create an environment which favours the transmission of communicable diseases. The younger girls, many of whom are young enough to be better described as girl children, suffer from stunted physical and mental growth due to the repetitive, monotonous and unimaginative nature of work.

The tale of apathy does not end here. The middlemen exploit the women workers to the hilt. Several of the younger girls are not paid for their work on the plea that they are not yet fully proficient at their work and payment would entail a loss to the factory owner. A study among the workers revealed that 97.3 per cent suffer cuts in their wages in case of damage to the article on which they are working. Seventy-two per cent were found to accept half wages, and 13.3 per cent were subjected

to full deduction. While a new worker is paid a quarter of the normal wage, the employer sells the output at the regular price. In case of market fluctuations the *mahajan* refuses to pay for the finished articles and leaves the financial burden on the worker. The employer does not follow the principle of 'extra pay for extra work' and does not make any extra wage payment for additional work that may be involved in creating a piece.

All this adds to the woes of the women workers. They are also wives and mothers at home. Despite being earners they are accorded a secondary and subservient status in the family. The level of education is extremely low and a sample study published by Sewa Bharat found that only 14 per cent of the women were literate and hardly any of them had even primary education. The *purdah* system, poverty, lack of opportunity, and ill-health are some of the factors which are directly related to the level of education.

Although the Zari industry earns precious foreign exchange for the country through exports, the government has neglected the development of this sector. The units continue to operate in the 'unorganised sector' and are the private fiefdoms of the factory owners. Section 3(1) of the Minimum Wages Act (1948) empowers the state governments to fix the minimum rate of wages and sub-section 3 of the Act further enjoins upon the government to fix:

- a minimum rate of wages for time work or 'a minimum time rate'
- a minimum rate of wages for piece work or 'a minimum piece rate'
- a minimum rate of remuneration to apply in the case of employees employed on piece work as 'a guaranteed time rate'
- Overtime

The legal provisions of the Act are certainly supportive and protective but they hardly meet the full requirements. For the skeleton staff, enforcing the law is practically impossible. The people in the unorganised sector are usually unfamiliar with their rights and privileges.

It may be noted that the Minimum Wages Act was passed in 1948 but the provisions of the Act were extended to Zari workers as late as 1980, thirty-two years after the promulgation of the Act.

Section 4 of this Act elaborates the duty of employer to pay equal remuneration to men and women workers for the same work or work of similar nature. The 'schedule' which lists the occupations in which children are prohibited from working does not include Zardozi, hence the provision to regulate working conditions is not applicable to the children in the Zari industry.

sector work as stenographers, typists and secretaries, primarily because it is easier to find women to fill these ill-paid jobs. Trichloroethylene used as a base for solvents in inks, correcting fluids, adhesives and cleaning agents has been found to cause headache, fatigue, dermatitis, nausea and vomiting. Secretarial staff are not afforded the same facilities as managers, positions usually filled by men. Not only do they face mental stress because their jobs are not secure, or because of sexual harassment which is not unknown, their work environment is not conducive to health. Several women suffer from pain in the back due to improper seating arrange-

ments. Where electronic keyboards with visual display units are used, they suffer from eye-strain, the possibility of developing cataracts and postural fatigue. Let us not forget that all these women have then to fulfil their household chores of cooking, cleaning and child care. Women who work in close proximity to chemicals are at even greater risk as this can cause mutation of the ovum and hence birth defects in the unborn foetus, spontaneous abortions and stillbirths. Workers in close proximity to pesticides, asbestos, lead, mercury benzene, organic dyes, and radiation are at particular risk. Mention should be made here of the nursing profession,

<i>Occupation and some causal factors</i>	<i>Health problems</i>	<i>Recommendations</i>
Agricultural workers		
Postural problems; exposure to dusts and chemicals; unguarded implements; working barefoot.	Generalised bodyache; aches in calves, hips, back, legs and shoulders; nasal catarrh, irritating coughs, irritation of the respiratory system; respiratory allergies; respiratory tract infections; tightness of chest; chest capacities; pneumoconiosis; cutaneous allergies; skin irritation; rashes and pruritus; mycosis; eye irritation; paddy keratitis; helminthiasis-schistosomiasis, ankylostomiasis; paronychia; fungal infections in feet; eczema; osteomyelitis of fingers.	1) The hours of work should be regulated through the guarantee of a living wage and security of alternative employment in certain periods.
Plantation workers		2) Proper implementation of laws regarding guarding of machinery.
Inhalation of dust; exhaustion due to heavy workloads, further increased by piece-rate wages and by high environmental temperatures and humidity; lack of health and medical services; working barefoot.		3) Warning and training about the use of chemicals.
Mine workers		4) Provision of protective equipment.
Exposure to mineral dusts; extremely hazardous working conditions; lack of timely diagnosis.	Injuries	5) Alternative work allocation during pregnancy and in the post-natal period.
Quarry-workers (Chrome)	High rate of thresher accidents, especially while crushing sugarcane and ginning cotton; also serious physical injuries occur from the cutting edges of implements such as sickles and machetes; for lack of first-aid facilities, small injuries become serious and often lead to tetanus.	6) Education and dissemination of information about the possible health hazards.
Exposure to high temperatures; lack of eye protection.		7) Research into the toxicology of the materials used.
Construction workers	Toxicities	8) Provision of health and medical facilities.
Heavy workload; unsafe noise levels; exposure to dusts and chemicals; accident-prone working conditions; contract labour.	Pesticide poisoning; intestinal, respiratory and neurological disorders; nausea; vomiting; abdominal cramps; diarrhoea, cough, headaches; vertigo; blurred vision; muscular twitching, convulsions; loss of reflexes, loss of sphincter control, disturbance of equilibrium; jaundice; coma, and ultimately death may result by respiratory arrest.	1) Regulation of hours of work through guaranteeing a living wage and regular employment.
All workers involved in manual labour		2) Provision of personal protective equipments.
Lifting heavy weights; postural problems; heavy workload; continuous heavy work from childhood through illness, pregnancy and in the post-partum period to old age; nutritional deficiency.	Gynaecological problems	3) Provision of health and medical facilities.
All women workers in the service sector	Abortions; premature deaths and stillbirths; high rate of neonatal, infant and maternal mortality.	4) Alternate work allocation during and after pregnancy.
Uncovered body parts in contact with water for long periods of time; contact with dirt infected by microbes, viruses; exposure to hazardous chemicals and the elements; transmission of infections from other people, due to close contact; lifting of heavy weights frequently; postural problems; accidents; low nutritional status; lack of facilities like toilets, drinking water, rest rooms, low wages and insecurity of employment.	Lung infections and bronchial problems; physical stress; malnutrition; helminthic infestations; dysenteries; contact dermatitis and other contact diseases; heat stroke; high incidence of maternal and child mortality.	5) Warning and training about the use of chemicals.
All women workers working in home-based occupations	Pneumoconiosis (a collective name for lung diseases caused by the continued inhalation of dusts); increased respiratory ailments; cancer of the lungs; stomach, liver, kidneys, and the central nervous system are affected by toxic dusts; deaths due to accidents.	1) Reduction in dust levels.
Exposure to dusts, such as tobacco, cement, housedust, exposure to hazardous chemicals, carbon monoxide; lead, abrasive cleaners, fungi; drudgery; repeated movements of a few parts of the body; heavy workload; postural problems without respite; constant strain on eyes due to poor lighting; low nutritional status and work valued less in money terms as well as in terms of status.	Heat strokes; severe eye problems as chips of alloys fly into the eyes.	2) Immediate implementation of existing laws.
Workers involved in processing and other industries	Physical stress and strain; skeletal defects; numbness of hands and fingers; loss of hearing; stress; high blood pressure; muscular pain; intestinal problems; gastroenteritis; respiratory problems; asthma; silicosis; asbestosis; skin diseases; heat cramps and sun burns; serious accident injuries, deaths; spontaneous miscarriages; high rate of infant mortality; a feeling of isolation and rootlessness.	3) Proper diagnosis and treatment.
Body exposed to ice-cold water; corrosive fluids; wet grounds; constant exposure to dusts, such as silica, fibres, allergens; infections due to work; repetitive, monotonous work; drudgery; eye strain; injuries due to sharp-edged, rough surfaces; postural	Disturbances of blood circulation in the pelvic organs and lower limbs; menstrual disorders;	4) Workers should have the right to decide the safety of the mine and act on it.
		5) Regulation of working hours through guaranteeing a living wage.
		6) Provision of comfortable personal protective equipment.
		7) Nutritional supplements.
		8) Provision of health and medical services.
		1) Frequent rest periods.
		2) Provision of sheds and rest rooms.
		3) Provision of drinking water and mineral salts at the worksite.

problems; contact with extremely hazardous and explosive chemicals; lack of facilities like toilets, drinking water, rest rooms; low wages and insecurity of employment; low nutritional status.

prolapse of the uterus; miscarriage or still-birth; flat and narrow pelvic, if carrying weights from early age; risk of injury to spinal column and adjacent muscles, especially in the lumbar region; circulatory organs may be affected; deformities; callousities; neuritic pains; paralysis.

Chronic bodyaches; chills; cold; bursitis; cancer of kidneys and skin; respiratory problems; insect bites; infectious and contagious diseases; skin diseases; burning sensation in hands and abdomen; eye problems; injuries to feet, hands and palms; sexual harassment and abuse; harassment by officials and the police.

Respiratory problems; hastening of tumours; digestive problems; adverse effect on reproductive system; fatigue; skin problems; back, particularly low back pain; pain in limbs; bodyaches; stiffness of joints; weakening of eyesight; heart diseases; acidity; ulcers; exhaustion and dizziness.

Extreme fatigue; pain in the body; corrosion of hands and feet; peeling of the skin; silicosis and other incurable and fatal respiratory problems such as fibrosis; clubbing of fingers; serious injuries; skin diseases like dermatitis; elephantiasis; backaches; allergies; weakening of eyesight.

- 4) Provision of personal protective equipment.
- 1) Regulation of employer- employee relations.
- 2) Strict provision of scaffolding.
- 3) Reduction in noise levels.
- 4) Provision of personal protective equipment.
- 5) Alternative work for women during and after pregnancy.
- 6) Guarantee of a living wage.
- 7) Reduction in working hours.
- 1) Provision of compulsory and free education with stipend for girls.
- 2) Research on ergonomics and working out good postures and training workers in these.
- 3) Developing safe and efficient implements.
- 4) Training of doctors in occupational health.
- 5) Legislating a comprehensive act on the working conditions of workers, leave provision, health insurance, a living wage, security of employment, and old age pension.
- 6) A nutritional supplement programme should be introduced.
- 7) Availability of first-aid and other health and medical services.
- 8) Regulation of hours of work through guaranteeing a living wage and security of regular employment.
- 9) Easy accessibility to drinking water, fuel and fodder.
- 10) Education and awareness building of the women, the policy-makers and the people on the issue of women's occupation-related health problems should be initiated immediately through the mass media.
- 1) Regulation of hours of work through a living wage.
- 2) Provision of personal protective equipment for work, where body parts are in constant contact with water and where heavy loads are carried.
- 3) Unsafe chemicals to be substituted.
- 4) Provision of training and alternate employment.

- 5) Provision of powerful local exhausts.
 - 6) Medical monitoring and free and good medical treatment.
 - 7) Doctors trained in occupational health to be provided for in comprehensive medical scheme including maternity benefits.
 - 8) Strict regulation of the powers of officials; stopping police harassment of prostitutes, rag pickers and vendors.
 - 9) Education and awareness building of the women workers, the policy-makers and the people, on the issue of women's occupation-related health problems should be initiated immediately through the mass media.
- 1) Research on and development of hazard-free cooking facilities like smokeless *chulhas*, biogas or LPG gas stoves. These should be widely distributed.
 - 2) Regulation of working hours of the workers through:
 - (a) guaranteeing a living wage;
 - (b) security of employment;
 - (c) leave and holiday provision.
 - 3) The workers should be further protected by means of legislation and ensuring that they receive:
 - (a) maternity benefits and antenatal care;
 - (b) creche and *anganwadi* facilities;
 - (c) basic facilities like drinking water, electricity, toilets;
 - (d) old age pensions.
 - 4) Workers should be provided with work space near the home and credit facilities for production shelters. Housing norms should provide for work space needs.
 - 5) Personal protective equipment should be provided to the workers.
 - 6) Postural training and other preventive health education should be initiated through the Workers Education Board.
 - 7) Research on ergonomic aspects of home-based production should be initiated immediately through National Research and Design Institutes, with a view to suggest possible modifications in the work posture and process, and to develop simple, inexpensive, preventive and protective equipment. This should be done in consultation with workers.
 - 8) Women workers should be provided with nutritious food supplements.
 - 9) Education and raising of awareness of the women workers, the policy-makers and the people, should be undertaken through the mass media. This should include:

- specific health problems they face;
 - (c) the reasons for these problems;
 - (d) the various possible solutions to reduce and stop these.
- 1) Protective equipment should be provided to workers to protect them from hazardous chemicals and constant exposure to water and dusts.
 - 2) Dust and fibre levels at the workplace should be controlled.
 - 3) Strict supervision to prevent accidents is necessary.
 - 4) Workers should be given frequent rest periods. This should be made legally obligatory.
 - 5) Proper facilities at the work sites should be made obligatory, e.g., proper lighting.
 - 6) A medical scheme should be evolved for workers which includes, among other things: regular medical check-ups and treatment, training of women doctors in occupational health issues, maternity benefits, regular rest periods, leave and holidays.
 - 7) Regulation of hours of work through a living wage, employment security and old age pensions.
 - 8) Women workers should be provided with nutritious food supplements.
 - 9) Education and raising of awareness of the women workers, the policy-makers and the people, should be undertaken through the mass media. This should include:
 - (a) the type of work women do;
 - (b) the health-related and specific health problems they face;
 - (c) the reasons or causes for these problems;
 - (d) the various possible solutions to reduce and stop these.

Source: *Shramshakti: Report of the National Commission on Self-Employed Women and Women in the Informal Sector.* New Delhi, 1988.

a profession largely regarded as a woman's job, which is characterised by exploitation and harassment. This perception owes its origin to the resistance on the part of the medical profession to the registration of nurses. As a consequence of this conflict, medical and nursing functions were genderised—medicine was regarded as a masculine profession, irrespective of the sex of the doctor, and nursing was seen as a feminine function. Thus, rather than providing better opportunities for women, this set limits on their participation in health care. As medical students, junior doctors and junior nurses both attend classes and perform ward duty—sometimes for twelve hours at a stretch. Yet, students of the general nursing and midwifery (GNM) curriculum are given a mere Rs 300 stipend, as against the junior doctor's allowance of Rs 1,600. While the pay commission undermines her role, can the nurse neglect her duties? Besides, reports of nurses being treated with disrespect and even being raped have almost ceased to be shocking.

The ANM in the rural areas has an even more inferior status—the word auxiliary should really say it all. With the genderisation of the profession itself, the function of auxiliary workers was also genderised. The ANM was assigned exclusively nursing and midwifery tasks, while male auxiliary workers were responsible for sanitation and disease control. The ANM suffers the most. She is not formally registered with the Nursing Council and does not command equal status with other nurses.

Thus, the health hazards faced by working women are both physical and mental, violating their health, self-respect and dignity.

Despite constitutional guarantees and talk of equality between the sexes, women workers continue to be exploited in both the unorganised and organised sectors. Denied equal opportunities, equal wages, equal service conditions, and subjected to all forms of discrimination and harassment, it is no wonder that they suffer from physical and mental trauma. It is time that research organisations focused on the health needs of working women. Creche, *anganwadi* and other facilities must be expanded to enable women to shed some of their workload. But a special effort must be directed at correcting the basic inequities in the control of resources which results in women's oppression and hence their poor physical and mental health.

Women: Victims of Violence

A majority of women in India are brought up learning domestic skills and routine household work: there are well-demarcated sex differences both with regard to upbringing and concomitant growth. A woman is, in terms of status and prestige, evaluated as one lacking in courage, one who is submissive and docile. Against this background, she becomes a viable target for violence in

response to other's stresses, strains and frustrations. Rape, sexual harassment, murder, wife-battering, female infanticide, dowry deaths and *sati* are increasingly captivating public consciousness in India and are being reported much more frequently by women themselves. The mental trauma and physical injuries that many women have to bear as a result of such forms of abuse remains a serious problem with severe repercussions on their psychological and physical health.

Rape

Women are constantly subjected to sexual harassment: be it at the workplace, in the streets or while using the public transport system. The most extreme manifestation of such sexual abuse is rape. Rapists are not necessarily persons with serious psychological aberrations. This is borne out by the mass and routine rape of women during wars, rural uprisings or the regular brutality on the part of the police force. Often, the perpetrators of the crime are family members themselves. It is commonly estimated that for every rape reported, at least ten go unreported due to fear of reprisal, humiliation and the blame that is heaped on the woman despite the fact that she is a victim and not the perpetrator. Insensitive rape legislation is only one of the many factors that prevent a woman from speaking out. Hostile and contemptuous police officers, lengthy medical examinations and harrowing sessions with lawyers are only some of the obstacles in the way of a woman wishing to take legal action. In India there are hardly any all-women police cells where rape victims feel safe and comfortable enough to register an offence. Even the few women-run police stations deal more with cases of dowry death and marital violence than with rape.



The following table gives a state-wise breakdown of rape cases as reported by the Home Ministry in the last few years.

Table 6

A State-Wise Breakup of Rape Cases Reported from 1986 to 1988

States/Union Territories	Rape			Molestation		
	1986	1987	1988	1986	1987	1988
Andhra Pradesh	301	335	455	989	853	1,168
Arunachal Pradesh	9	11	16	6	9	12
Assam	354	379	278	139	101	81
Bihar	563	580	623	411	244	182
Goa	—	12	20	—	10	9
Gujarat	144	159	130	637	663	600
Haryana	144	14	90	265	41	153
Himachal Pradesh	52	34	45	117	122	134
Jammu & Kashmir	187	171	211	899	850	956
Karnataka	137	164	184	557	807	843
Kerala	133	188	197	494	488	594
Madhya Pradesh	1526	1695	NA	4698	4871	NA
Maharashtra	800	781	830	2724	2417	2646
Manipur	10	9	9	27	21	24
Meghalaya	19	19	10	10	10	18
Mizoram	46	62	56	29	NA	30
Nagaland	8	11	9	Nil	Nil	Nil
Orissa	164	184	180	583	524	554
Punjab	49	47	49	37	37	21
Rajasthan	598	604	578	939	964	1072
Sikkim	5	8	6	6	12	14
Tamil Nadu	231	231	252	750	726	669
Tripura	38	43	43	26	26	123
Uttar Pradesh	1192	1291	1437	1591	1795	1948
West Bengal	503	491	529	304	346	276
Andaman & Nicobar Islands	2	6	4	22	23	20
Chandigarh	4	4	4	1	5	8
Dadar & Nagar Haveli	Nil	2	3	5	4	6
Delhi	89	103	111	112	95	121
Goa, Daman & Diu	8	NA	3	8	NA	Nil
Lakshadweep	Nil	Nil	Nil	Nil	Nil	Nil
Pondicherry	5	7	5	7	7	7

1. Figures are based on monthly crime statistics and are to be treated as provisional.
2. NA stands for Not Available.
3. Figures for Haryana for the year 1987 are up to February 1987 only.
4. Separate figures for eve-teasing are not available. Cases of eve-teasing are included in the cases of molestation in Bihar.
5. Figures for molestation and eve-teasing are excluding the months from April 1987 to June 1987 in Bihar.

Source: 'Rape—A Growing Menace'. *The Illustrated Weekly of India*, 28 January 1990.

Apart from the actual deaths of women as a result of rape and battering, those who survive may suffer from extensive injuries. Rape can result in sexually transmitted diseases, unwanted pregnancies and torn tissues of the anus and vagina. Some of the commonly-felt psychological repercussions of rape victims are presented in the following chart.



SOULLESS LEGISLATION

The rape law, framed in 1860 and based on the then existing Victorian code of conduct and anti-woman bias, remained unchanged in statute books for well over a century. Under this law, a rape victim had to prove that the sexual intercourse did not have her consent. In 1983, as a result of the gaining momentum of the women's movement, an amendment was passed which shifted the onus of proof, at least in cases of custodial rape, to the accused in the case.

Although the amendment was not adequate, it was at least a beginning, a step towards progress. It was assumed that the courts would follow the spirit of the amendment and give women a better deal. But, unfortunately, our courts and judges have chosen a more conservative and anti-woman approach while interpreting even the amended law. The recent Supreme Court judgment in the Suman Rani case has brought home this fact.

The pre-amended rape law did not have a provision regarding minimum punishment to the accused in a rape case. The quantum of punishment was left to the discretion of individual judges. The amendment laid down the minimum punishment for rape as seven years and the maximum as life imprisonment. In case of police and other custodial rapes, rape of pregnant women, girls under 12 years of age and gang rapes, the minimum punishment under the amended law is ten years imprisonment. The following cases will provide a glimpse of some lesser-known judgments regarding punishment.

In a case reported in the *Criminal Law Journal* in 1986, the Delhi High Court struck down a Sessions Court conviction of fourteen years to the rapist. An 8-year old girl had been raped by a boy in his early 20s, while another boy of 16 kept her pinned to the ground in broad daylight in a primary school building in Delhi. The girl was bleeding profusely when her mother found

her. The High Court held that awarding a 14-year old a sentence was not legal. The judgment stated that the courts had only two choices: either life imprisonment or a sentence of a maximum of ten years imprisonment.

In another case reported in 1984 a 7-year old Harijan girl was raped by a boy of 18. She was severely injured and left unconscious. The Sessions Court convicted the accused with five years imprisonment. In an appeal by the state to enhance the sentence, the Jaipur bench of the Rajasthan High Court dismissed the appeal and held that 'although the rape warrants a more severe sentence, considering the accused was only 18 years of age, it would not be in the interest of justice to enhance the sentence of five years imposed by the trial court.'

In yet another case reported in 1985, the Sessions Court convicted the rapist with imprisonment. On an appeal against the sentence, the High Court of Himachal Pradesh held that since the rapist was 16 years old at the time of the offence, his trial and conviction by the Sessions Court was vitiated in law. Since the rapist was a child under the Children's Act, only an inquiry under the Act should have been held and not a regular trial by the Sessions Court. Yet, the 'minors' were old enough not only to have sexual intercourse, but forcible penetration causing multiple injuries to girls below 10 years.

In the context of a large number of rapes of minor girls by boys in their late teens and early 20s, the amendment regarding minimum sentence has proved totally inadequate. The compassion of the judges seems to be towards the 'delinquent' rapists and the sentence in these cases has not proved to be a deterrent against the rape of innocent infants.

Source: 'Rape—A Growing Menace'. *The Illustrated Weekly of India*, 28 January 1990.

The Rape Trauma Syndrome

Reactions	Signs and symptoms
Phase I: Acute (disorganisation)	<i>Impact reactions:</i> shock, disbelief, expressed emotion, controlled emotion. <i>Somatic reactions:</i> physical injury, tension headaches, fatigue, sleep disturbance, abdominal pain, loss of appetite, vaginal complaints. <i>Emotional reactions:</i> fear, humiliation, embarrassment, anger, guilt.
Phase II: Long-term (reorganisation)	Relocation (change residence and obtain unlisted phone number), obtain support from out-of-town relatives, nightmares, multiple fears and phobias (e.g., indoors, outdoors, alone, crowds, strangers, sexual activity).
Compounded reaction	<i>Severe psychological trauma:</i> victim usually needs psychotherapy; possibility of suicidal behaviour; alcoholism, drug use, severe somatic symptoms.
Silent reaction	<i>Persistent anxiety:</i> marked irritability; change in sexual

behaviour; sudden onset of phobic reactions; sudden loss of self-esteem or development of guilt.

Source: *Asian and Pacific Women's Resource and Action Series—Health*.

Domestic Violence

Domestic violence is probably the least reported of crimes, probably due to a combination of the facts that (a) the police view family violence as a matter to be sorted out internally and (b) that women are reluctant to report cases due to fear of exposure in their community or due to the likelihood of retaliation from their husbands. In India, where women are more often treated as the 'property' of their husbands, wife-beating is almost a norm. The battered wife is often held responsible and it is assumed that she invites violence at home, either by maintaining illicit relations with other men, by being too vocal, or by denying her husband sexually.

The scope of this paper does not allow an in-depth analysis of domestic violence, or even a list of cases—

which indeed would be endless. The findings of one study at a centre for battered women can provide an insight into the magnitude of this horrific problem:

The husbands had physically assaulted their wives with their hands and sometimes with objects. They had been punched, kicked, beaten and spat at. Objects used to beat them included a cane, belt, iron chain and iron bar. Two women were threatened with a knife and a gun, one had boiling water thrown at her, another had her knuckles cut by a knife. The hands and feet of one woman were tied while the husband tried to force her to drink pesticide. One woman was sexually abused regularly. ...Injuries resulting included extensive bruises, concussion, black eyes, broken teeth, and wounds requiring stitches. One woman broke a rib and some women had miscarriages.



Dowry Death

In 1989, 6,500 dowry crimes were registered by the police in Delhi alone. Of these, a mere 1,500 of the accused were arrested and all of them were released on bail. More than 20,000 such cases are pending in the Supreme Court.

The category 'dowry deaths' includes crimes committed on the grounds of inadequate dowries, but also crimes which have their basis in other emotional tensions where the actual or supposed inadequacy of dowry becomes an excuse.

In Delhi, a bride's life is snuffed out at the rate of one every twelve hours. The Delhi police statistics record a steady rise since the 1970s when hardly any cases were even reported. The few that were investigated were dismissed as 'kitchen accidents' or suicides by the authorities since the majority of the deaths occurred in the kitchen where women were burnt alive.

Saheli, a women's organisation in New Delhi, conducted a survey of burns cases in one of the local hospitals. They found that the majority of the female victims were in the 18 to 35 age group and as many as 58 per cent were not wearing synthetic clothing at the time of the accident, as is usually alleged.

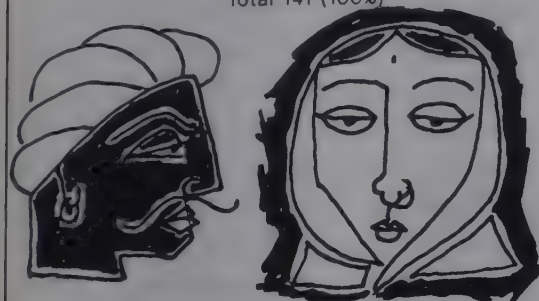
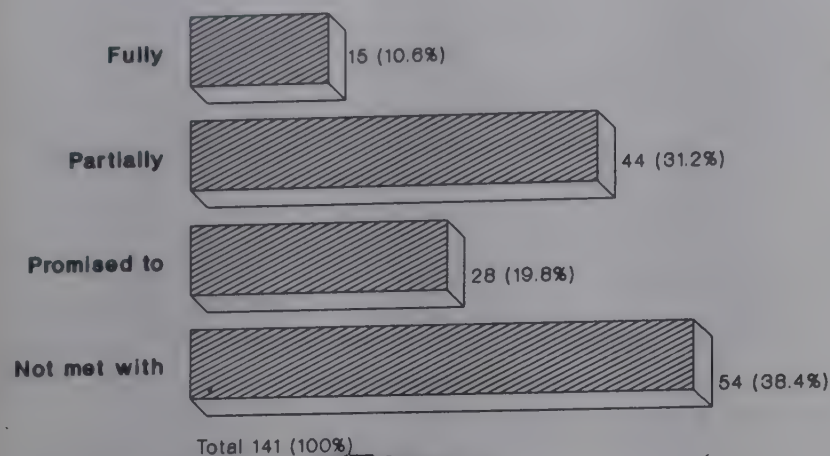
In a survey conducted by Ranjana Kumari (*Sunday*, 2-8 July 1989), 50 per cent of the victims (who were alive) reported that dowry demands were not the only cause of marital discord. Their condition was attributed as much to the consequences of (a) their allegations that their husbands were impotent (9.8 per cent), (b) their allegations that their husbands were indulging in extra-marital relations (7.1 per cent), (c) their refusal to oblige the sexual overtures of their fathers-in-law and brothers-in-law (7.1 per cent), (d) their resistance to their husbands, addiction to drugs and alcohol (19.7 per cent). On the other hand, 52.6 per cent of the husbands and in-laws of the deceased victims blamed the girl for having extra-marital relations.

The survey also revealed that 78 per cent of the victims were subjected to physical violence almost every day. Yet, getting out of a relationship posits an equal number of hazards for women. After all, outside the home too is a male-dominated society. Within the home the woman has no saviour, the mother- and sister-in-law often acting in collusion with the husband against the woman. Often, other emotional tensions—the close link between a mother and her son and her possessiveness about him—combine with material greed and find expression in violence against the women. In some homes, the daughters-in-law are forbidden from maintaining close links with their natal families, thus destroying their only source of support. With the Deorala incident the widespread prevalence of sati was brought to light and needs no elaboration here. But less is known of the exploitation, harassment and violence that women face in the several so-called welfare homes—many run by the government—all over the country. These welfare homes are in fact claustrophobic jails from which there is no escape. Any small offence is punished by beatings. Most inmates suffer from malnutrition as both the quality and quantity of food leaves a lot to be desired. Medical facilities are inadequate, and women suffer from chronic skin diseases, TB and other communicable diseases.

Figure 5

Degree of Fulfilment of Dowry Demanded after Marriage

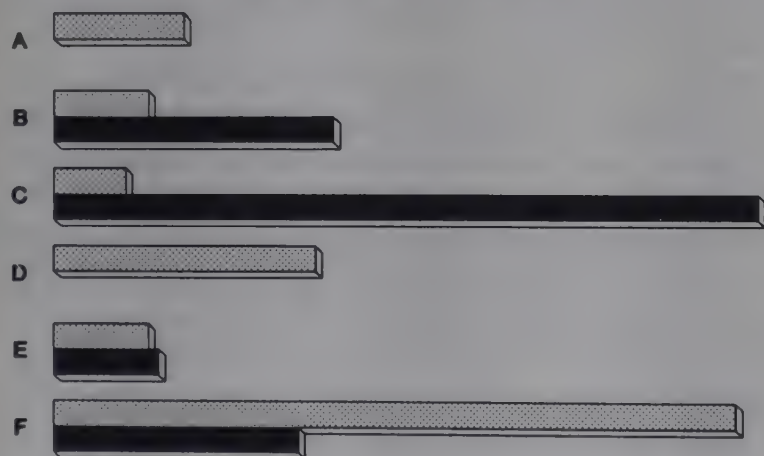
Frequency/per cent



Frequency of tensions other than Dowry

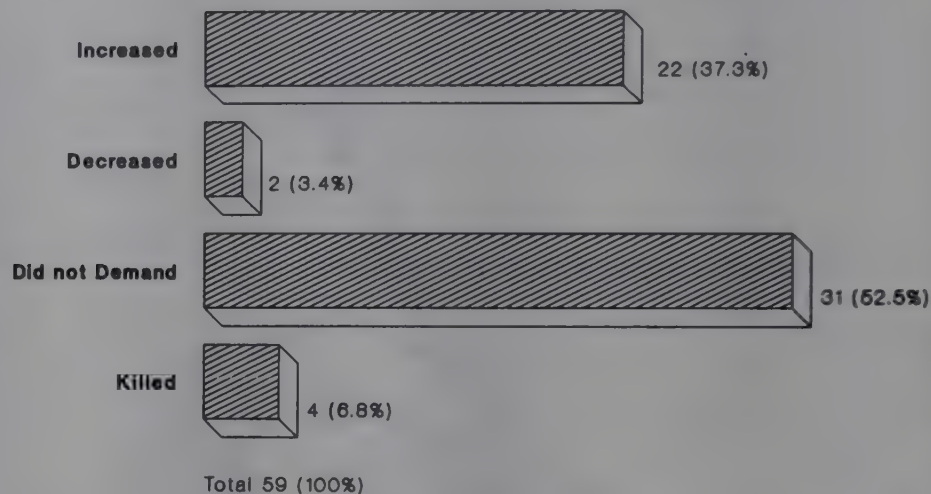
Alive Cases
 Dead Cases

Total 112 (100%)
 38 (100%)



Degree of Harassment after Demands were Partly or Fully Fulfilled

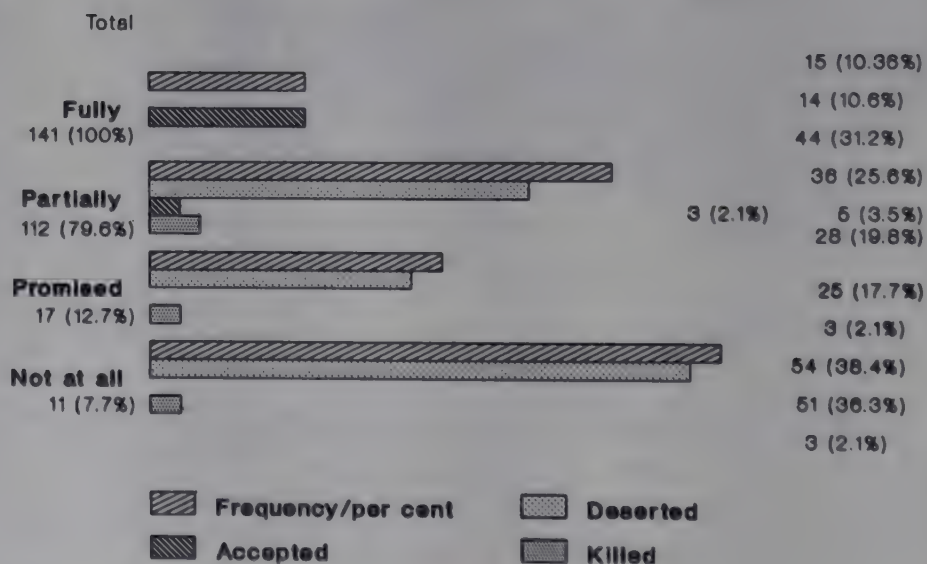
Frequency/per cent



11 (9.8%)
 8 (7.1%)
 8 (21.1%)
 6 (5.4%)
 20 (52.6%)
 22 (19.7%)
 8 (7.1%)
 3 (7.9%)
 57 (50.9%)
 7 (18.4%)



Correlation Between Fulfilment of Demand and Desertion or Acceptance



UNBURDENING, SUPPORT, ACTION: THE WOMEN'S CENTRE, BOMBAY

'Why did I go back to my husband? I want to give my marriage a final trial. But I do not see my return as a submission. I have gone back on my own terms and conditions: I won't give up my job, I will visit my relatives and I will maintain contact with the Women's Centre. I will also use my maiden name at my workplace.'

Neelam was speaking of the difficult situation she was in, fighting for her autonomy while living in her husband's home. Her frank admissions were not made in a private counselling session, but at an open meeting of twenty-five women.

Convinced that sharing their experiences would give strength to individual women in distress and make them feel less lonely and isolated, the Women's Centre has often drawn women together to talk about their problems. Seeing the positive effects such meetings produced, we started organising these meetings regularly on every second Saturday of the month from April onwards. At least twenty-five to thirty women attended. Sometimes, the topic is suggested in advance, sometimes it emerges spontaneously. In Neelam's case, she had been asked to talk about why she went back to her husband, as this is a fairly common situation and one fraught with anxiety and misgivings.

Women listening to each other's tales of courage and endurance feel the lightening of the heart that comes from knowing that one is not the only sufferer. The pain and isolation of each are relieved by the common features of their problems,

which they begin to perceive in the larger perspective where they need not feel crushed by a sense of personal failure.

Apart from the bracing effects of group counselling, the discussions often lead to direct action. Amla's fears of her husband's threats led to a *morcha* to her husband's workplace. At other times, common friends are enlisted to offer solutions. Mona's desire to recover her belongings from her in-laws' house was backed by eleven women accompanying her to retrieve them. Such collective enthusiasm and action raises everyone's spirits and morale. Here are women immersed in their own traumas giving other women concrete support.

The picture is not always so bright, however, and there are limitations to this kind of experiment. At the get-together, some women feel reluctant to speak openly, while others tend to dominate the discussions. Some women find it difficult to attend even once a month. If two women belong to the same office, they feel hesitant to attend the same meeting. Then again, a pessimistic note creeps in. 'At the Centre, I feel free to say these things. But my neighbours still view me as a strange woman'. 'My children face many problems at school'. 'When is all this going to change?' To offset this inevitable brooding and to provide a wider background to women's issues, the Centre organises slide shows and talks on a variety of feminist concerns.

Source: *Asian and Pacific Women's Resource and Action Series—Health.*

Housing as these homes do criminals and non-criminals under one roof, the inmates often become victims of bizarre sexual habits and other forms of violence.

Crisis centres and services have been set up by women's organisations in at least the major cities in India. Many more services need to evolve and emerge for victims of violence. The Women's Centre, Bombay, is one example of how these services can help individual women cope with the stress of violent relationships.

Although the Indian government has shown a degree of concern for violence against women and has initiated legal reforms in related spheres, the loopholes in the law and the harassment faced throughout the legal process have not made implementation a reality.

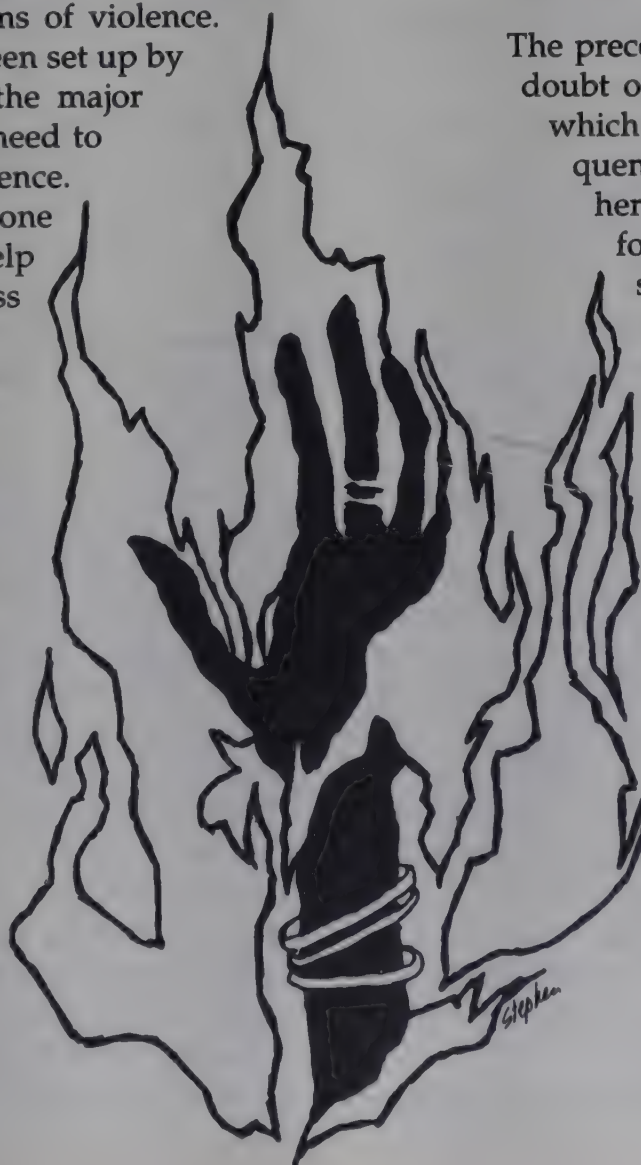
While supportive services, legal reform, public education to change awareness and attitudes, and campaigns and demonstrations are important action areas, violence against women is likely to continue unless the basic structures and attitudes behind the various inequalities in society, including that of gender, are changed.

Women and Mental Anguish

The preceding discussion can leave one in no doubt of the mental trauma and anguish to which the woman is subjected as a consequence of discrimination in all spheres of her life. While there are several reasons for women to suffer high degrees of stress, any statistics must be viewed with caution for there is a tendency for male psychiatric doctors to more easily categorise women as mentally ill.

Yet, for most women in India, the stress of domestic and occupational work leaves them with little time for self-awareness and their own psychological needs. Furthermore, placed in an alien, often hostile, environment in the homes of their in-laws, they cannot voice any complaint. They are virtually cut-off from their natal homes and have no sympathiser to share their problems. These bottled feelings can in time manifest themselves psychologically.

While men more easily manifest their problems—through



alcoholism, drug use, etc.—women's problems are neglected, to be suffered in silence and isolation. The factors that contribute to women's ill-health begin with the process of socialisation itself—the physical and mental trauma of discrimination between the sexes, within the family and in the occupational sphere, violence within the home, experience with sexual abuse or rape, oppressive norms of marriage with the institution of dowry taking a hold of their lives, illiteracy and lack of educational skills, intimidating and often violent conjugal homes with little or no help from their natal homes—the list is endless. These factors, combined with the fact that the 'adjustments' to be made are always the responsibility of the women, take their toll on the ability of the woman to survive in the larger social milieu. Those who fail to do so collapse psychologically and become psychiatric survivors.



Box 13

STRESSORS FACED BY MOST WOMEN IN INDIA

- | | | | |
|------------------------|---|--------------------|---|
| Economic Stressors | — Inadequate food for family | | physical, sexual |
| | — inadequate financial resources for other basic needs—shelter, health, clothing | | — work overload and ignored occupational hazards |
| | — inadequate financial resources for maintenance and improvement of assets—land, livestock. | Family Stressors | — migrations of self or husband |
| Social Stressors | — women's low status in family and society | | — status in family |
| | — <i>purdah</i> system | | — early marriage |
| Cultural Stressors | — oppressive interpretation of myths, stories | | — role expectations |
| | — harmful food taboos, especially during pregnancy/lactation | Personal Stressors | — physical/sexual stress and violence |
| Occupational Stressors | — insufficient wages and earning opportunities | | — inadequate food |
| | — exploitation at work—economic, | | — work overload |
| | | | — poor self-image |
| | | | — frustration due to unmet needs and desires |
| | | | — anxiety/insecurity due to lack of physical safety |
| | | | — deprivational stress due to loneliness |

Source: *Health for the Millions*, XVI, 6 December 1990.

Is it any wonder, then, that a significant number of women crumble under the strain.

Mental health is an area that has been completely ignored by the government, and psychological treatment is only a very small part of the overall health care system. In India, the concept of availing of psychiatric treatment is still new, often looked upon with suspicion, and associated with insanity. Most women find solace in indigenous methods—through spiritual or religious healing, or a study of astrological configurations to justify existing levels of stress and mental hardship.

Besides providing services for mental health, the government and concerned individuals must destroy the root of these problems which lies in the very social structure from whence they arise.

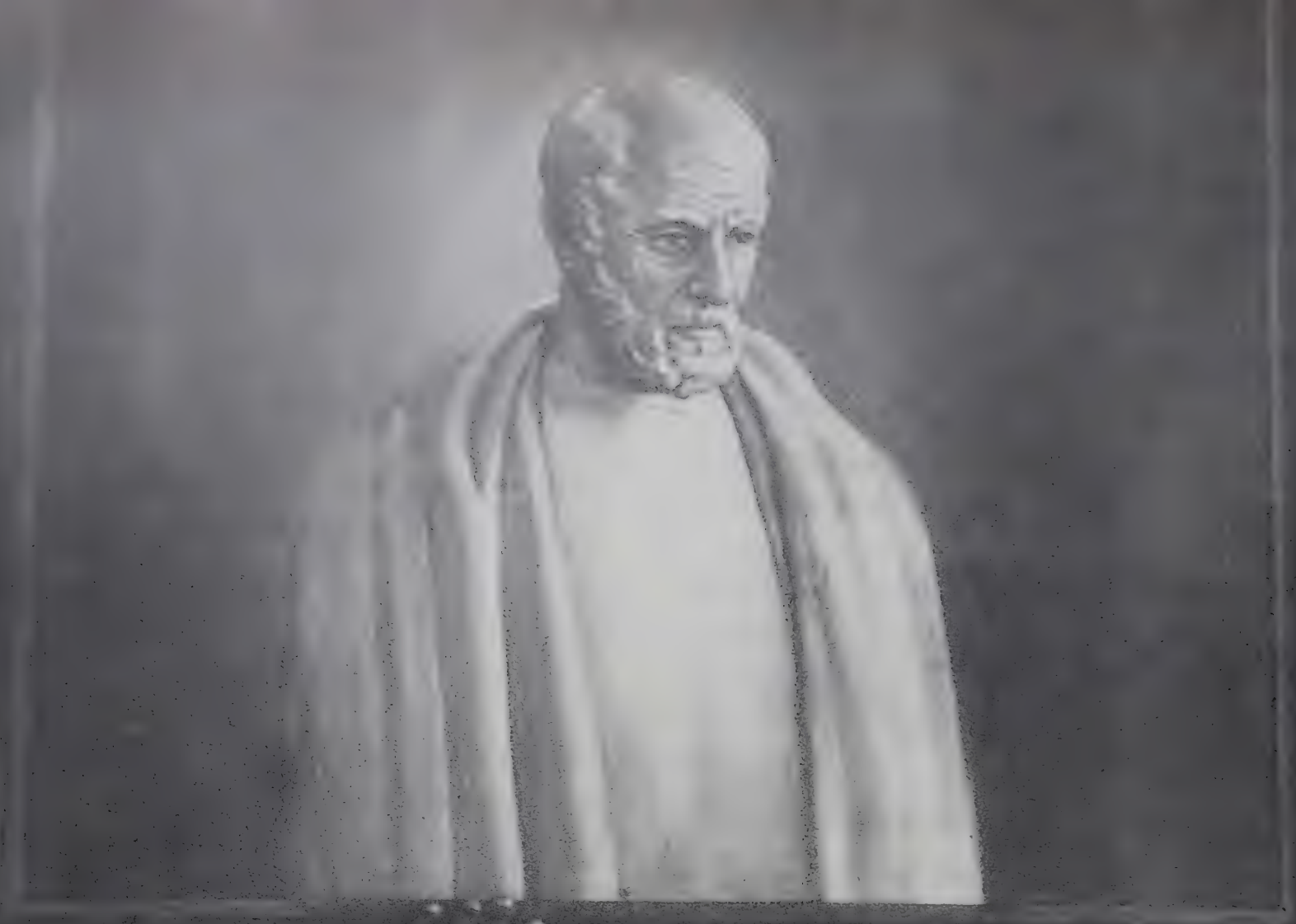
All necessary steps must be taken to ensure stringent

punishment for rape, sexual harassment, and eve-teasing, and legal measures should be taken to prevent domestic violence and harassment at the work site. But is this really the answer? If the legal process is inaccessible to the majority of women, how will legislation help? If the police are often the perpetrators of crimes against women, how can the government machinery be relied upon to help mitigate women's anguish? The answer, if there is one, lies in changing attitudes. As long as the preference for boys over girls prevails and unless our values are overhauled, nothing is likely to change. Until the girl is taught to value her self and her contribution to society and unless society recognises that contribution, the cycle of neglect, indifference and conscious discrimination will continue unabated with all its adverse consequences.

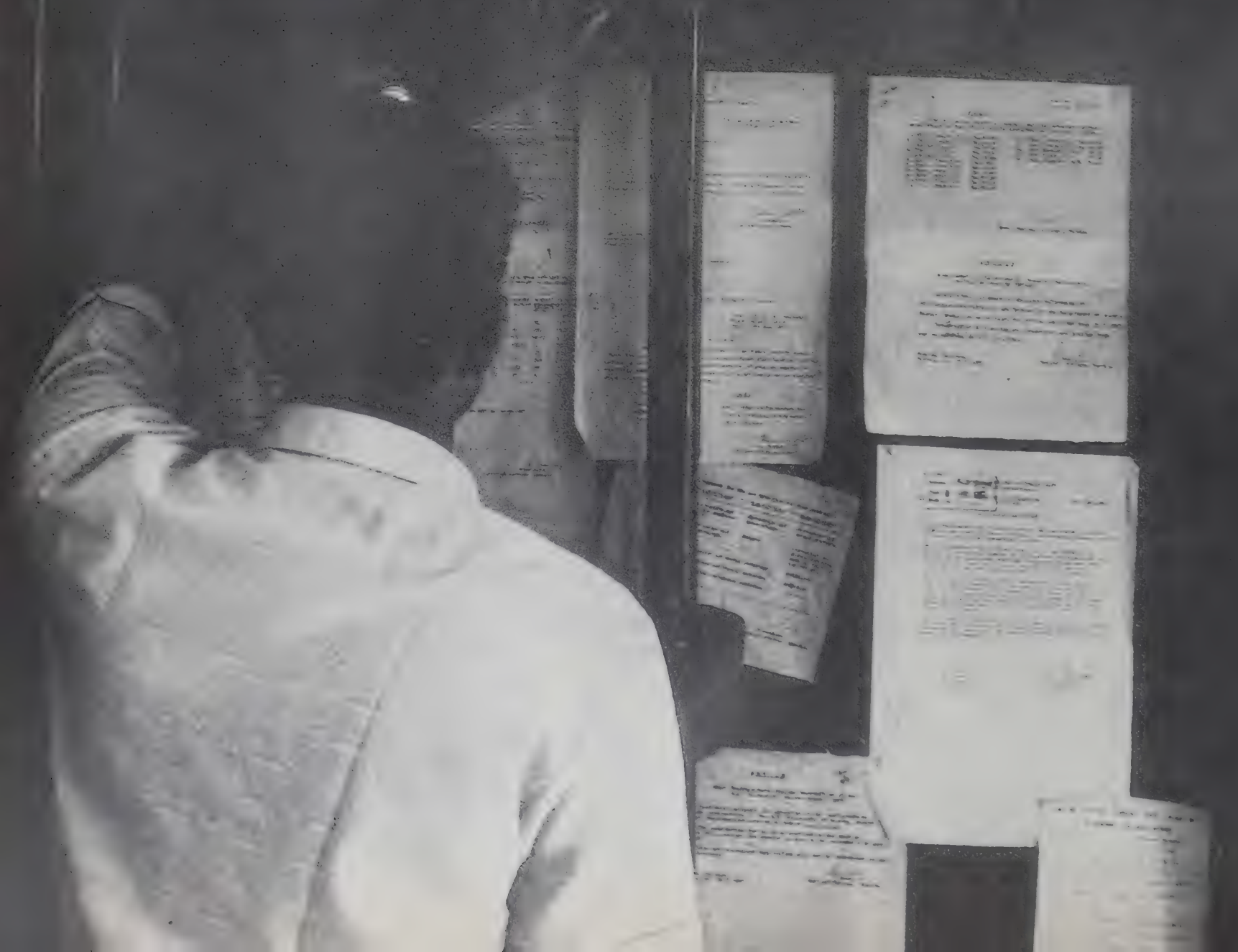
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LOWHATES



Medical Education

Introduction

In recent years, the state of medical education in India has come in for a spate of criticism from all quarters: the public, politicians and even medical educationists. The most common charges against the current system of medical education include the sub-standard education imparted to students, a pattern of training that does not fit the country's needs, and the irrelevance of the curriculum to community health requirements, the prevailing disease pattern, or even to future clinical practice. This is often seen in the light of the depressing and seemingly stagnant health status of the Indian people, widespread malnutrition, high rates of infant mortality and rampant diseases. The arguments presented frequently have strong emotional overtones and stem from a basic confusion concerning the role of medical education, health care delivery and the eradication of dirt and disease. Further, while the superficial aspects are most often questioned, critics often fail to realise that perhaps the prevalent mode of education is a logical outcome of the overall socio-economic and political structure of our society. While there are several problems and inherent contradictions in the medical

educational system, it is important that the failure of the government, politicians and administrators in tackling the health needs of the country is not attributed to the deficiencies of medical education per se.

To effectively analyse the problems that confront medical education, it is necessary to come to terms with the purpose and aims of training imparted to students, the nature of the training in terms of process and content, the people who impart this training, the facilities and the infrastructure available to participants in the educational process, and the attitudes and values of medical personnel resulting from their educational experience. This would naturally have to be viewed in the context of the policies of professional and governmental bodies regulating medical education within the country. It is also necessary that while discussing these topics we do not confine ourselves to what is most sought after and predominant, namely, the allopathic training imparted in this country, but that we also include in our analysis the state of education imparted in colleges of indigenous systems of medicine, to nurses, and all functionaries undergoing formal medical education.

Diagnosing the Problems

Background

There are presently about 338 medical colleges in India. Of these, 125 impart allopathic training and 213 confer degrees in the indigenous systems of medicine. In 1987-88, the total number of students trained exceeded 12,000 and 4,500 in the two broad categories, respectively.

There is a lack of consistency in the governance of medical colleges: some are privately run, others are under state control or under the Health Ministry, and very few are either under universities or autonomous. Generally speaking, these medical colleges function as separate entities with very little in common. Control over the medical colleges is not clearly delineated: while the central government, the state governments, the affiliating university and the Medical Council of India (MCI) are all in a position of authority, the extent and limitations of individual authority are not clearly defined. Broadly, however, the MCI determines the overall standards to be adhered to by medical colleges, prescribes the qualifications for the eligibility of students and faculty, authorises curricula, recommends appropriate student-teacher and student-bed ratios, and proposes necessary infrastructural requirements for a medical college. The affiliating university sets up detailed curriculum within the framework authorised by the MCI, conducts examinations and confers degrees and diplomas. The government admits students, appoints teachers and provides the material infrastructure for teaching, including the

hospital. Over the years, however, control by the MCI and the university has become notional and governmental control which is exercised largely by bureaucrats, who are neither doctors nor teachers, has steadily tightened its grip. This control is exercised by the government in the crucial areas of financial allocation and the appointments, transfers and promotions of teachers.

However, despite the supervision of these statutory bodies there is no standard mode of selection to the medical colleges (the Government of India is still contemplating a combined medical entrance examination), the subjects taught in the various medical colleges are not necessarily the same both in terms of content and structure, and even the duration of courses is different (ranging from four years in Pune University to six years in some universities in Bihar). The duration of the community health posting during internship varies from one month to six months and the stipend given to postgraduates for the same amount of work ranges from Rs 550 to Rs 2,800 per month.

Curriculum

The most common curriculum schedules in medical colleges are of a duration of four and a half years. While most of the colleges divide this period into the pre-clinical, para-clinical and clinical phases, of equal duration, there are exceptions. The All India Institute of Medical Sciences (AIIMS), for instance, has reduced the pre-clinical period by six months and added this time to the last phase in order that students might gain more experience in handling patients.

Box 1

THE MEDICAL COUNCIL OF INDIA (MCI)

The MCI is a statutory body constituted by the Parliament. Its activities in India relate to advising the Union government on the validity of medical qualifications granted by various institutions and maintaining the Indian Medical Register containing the names of qualified medical personnel. In the field of medical education, it is the apex body which ensures standards as well as adequate and appropriate curricula.

Once in about ten years, the MCI publishes the minimum requirements for admissions to undergraduate and postgraduate courses and the qualifications required of the faculty. These are used by the medical colleges when it is convenient to them. Once or twice in a decade, the standards in departments are supposed to be inspected by external experts delegated by the MCI. However, these inspectors concentrate instead on checking physical facilities, staff patterns and their experiences. The inspector might see a sample examination paper or listen to the answers of a few students at a viva-voce: he then submits a bulky report which is scrutinised by the sub-committee members of the executive or postgraduate committee and their recommendations are placed before the general body which meets once a year for a day. Usually, the highpoint of the general body meeting is the election of office-bearers and the items

related to academic matters which are cleared routinely. The comments of the inspectors reach the institutions a year later.

The Indian Medical Council Bill (1987) which sought to streamline medical education in the country came under severe criticism from all quarters for it proposed to grant sweeping powers to the MCI, including the authority to put a ban on capitation colleges. Several of the controversial provisions were, however, diluted by the Joint Committee of Parliament. The Committee stated that the MCI would have no state branches but that the state councils would function as a chapter of the MCI. Requests for new colleges, courses or increased admission capacities would be routed through the state government. While retaining the clause pertaining to the banning of capitation fees, the Committee said that contravention of this provision could entail 'punishment' of the concerned college but only with the prior approval of the central government.

No consistent efforts to prevent the mushroom growth of these capitation colleges have been made in reality. Medical colleges have started functioning without MCI approval and half of the medical postgraduate degrees are not yet recognised by the MCI. The minimum standards laid down are followed more in default than in acceptance.

After clearing the first MB (several attempts are permitted), students embark on the clinical course. This is punctuated by the second MBBS which usually consists of two parts: the first part is often taken after one year and second is taken six months later. The curriculum in the second MB generally relates to pharmacology, microbiology, pathology, and allied subjects with introductory and advanced aspects of the same taught for the first and second parts, respectively. As in the pre-clinical course, a great deal of detailed knowledge is imparted and tested, especially in pharmacology, and students have to pass a rigorous practical examination. The final MBBS is also in two parts and covers major clinical specialities, forensic medicine, toxicology and preventive and social medicine (PSM). In many medical colleges, each of the three MBs may be taken any number of times—there are apocryphal tales of twenty-six attempts at the final! Students are usually cleared after a few attempts, however, and job applications often have a space for the candidate to confess how many attempts were made at each examination. Registration is obtained on completion of a year's compulsory rotating internship.

The medium of instruction is English in all medical colleges. Although some students come from elitist English-medium schools, many others come from schools where teaching is conducted in the local language and English is taught as a second language. Thus, the bias towards the Westernised urban elite minority is reinforced through the preference for English since individuals from such backgrounds are accustomed to spoken English in their homes and gain further fluency in their educational institutions. By virtue of their upbringing, students from this stratum are able to learn more, get the best house jobs and the most lucrative job offers. If medicine were taught in either the regional or national language, the international mobility of doctors would fall dramatically, causing grave concern to the elite.

The problem of language is not confined to the lecture rooms. If students are unable to take down a patient's history because they do not know the local language or even the names of common diseases in the national language, there will be no communication between the two. Students who attend medical colleges outside their own states have additional difficulties as they do not speak the same language as their patients.

The books that are used in medical colleges are a mixture of standard Western textbooks and those written by Indian authors. Books written by foreign authors are used in Western universities and address cultures with different socio-economic scenario and disease patterns. At the pre-clinical level, Indian texts are not widely used, perhaps because they tend to be more in the nature of expanded lecture notes.

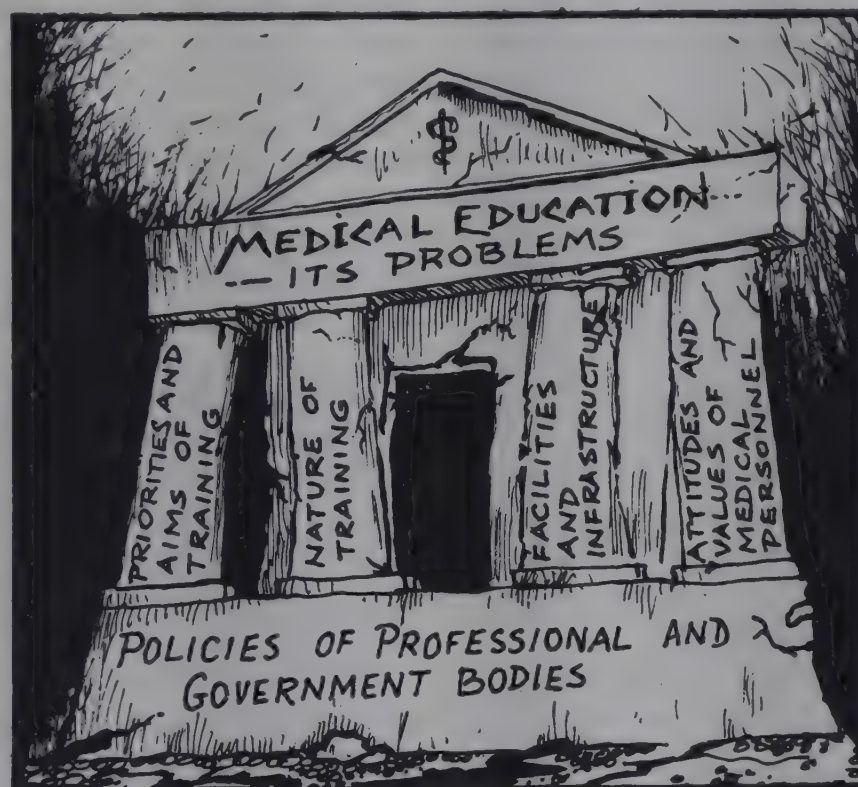
A change in the undergraduate curriculum has for long been recognised in Indian medical circles. The need for less autocratic methods of teaching than the British 'ivory tower' approach and more relevant and realistic courses has also been reiterated. Management of prevalent diseases with limited resources should be an important component of the curriculum. In some states and independent colleges, a slight shift of emphasis has been achieved while most have not even been tried.

Others have failed completely in their efforts, largely due to resistance from established departments which are hostile to demands from traditionally weak departments of community medicine and also to the recommendations of the IMC.

The knowledge imparted to the students is often irrelevant and unrelated to daily needs. Rare disorders and diseases are emphasised as opposed to those that are more widespread. Students do not even learn enough about common infections or problems of mental and child health. In a country with such a large

population of children, paediatrics is still part of general medicine in several states, warranting only a couple of questions in an examination. While ENT and ophthalmology form part of general surgery in some medical colleges, biochemistry and forensic medicine are not taught at all in many institutions.

In the past ten years in particular, much research has been directed towards the study of the power of the mind in the process of health and well-being. Hippocrates and other pioneers in medicine spoke of the art of medicine being of equal importance as the science. Scientific endorsement and validation of the central role of the art of medicine is now emerging steadily as a fresh discipline—psychoneuroimmunology. The power of the mind to influence, alter and bring about profound changes in parameters such as neurotransmitters, lymphokines, endocrine secretion, cell and hormone-mediated immunology has been well researched. A whole new body of evidence underscoring the complementary



and supplementary role of the art of medicine, which, along with the practice of the science optimally brings about total healing, health and well-being of the individual, can no longer be overlooked as arbitrary evidence. The age-old oriental practices such as yoga, meditation and imagery have now been documented to have a profound and favourable influence in modifying the internal environment of the human being and making it conducive to health and healing. Current research has helped to scientifically validate this time-honoured wisdom.

Medical curricula should find an adequate slot to teach students about the principles, benefits, scope and practice of psychoneuroimmunology. To complement this module adequate inputs on humanities and biobehavioural sciences should also be appropriated. This will foster the development of a more humane and holistic approach in medical practice, bringing about a happy synthesis between the science and the art of medicine.

Teaching continues to be in the form of didactic lectures, thereby suppressing active learning through seminars, workshops or question-and-answer sessions for appropriate skill development. Conceptual knowledge, independent study and research, and observational techniques are not provided with a strong basis. One reason for the poor quality of doctors in India is the present examination system which calls for long answers in essay form rather than objective responses. Learning is thus necessarily by rote and students have to commit endless pages of text to memory. While journal work and viva-voce play a minor role in the overall evaluation of a student's ability, irregularities are quite widespread. It is not possible to estimate the extent of cheating, casual observation shows it to be quite significant.

Even the diseases that are seen in our medical colleges are in glaring contrast to those common amongst the

country's ailing millions. Since most of the poverty-stricken patients are usually unable to get to a general hospital, the student rarely gets to see what is otherwise commonplace. The stark contrast between teaching and practice leaves one with a sense of unreality: bacteriology and asepsis are learnt only in theory and clash with the absence of even basic hygiene within the hospital premises or the high rates of post-operative infection even in the best hospitals.

An integrated teaching approach whereby a student has a holistic view of medicine with clear goals of community medicine and the rationale behind the pursuit of various disciplines has not been followed. The few attempts to introduce integrated teaching have thus far failed. For instance, the programme of integrated teaching in maternity and child health sponsored by the WHO in which faculty from paediatrics, obstetrics, gynaecology and preventive and social medicine interacted to portray disease processes and remedial measures in the social context to students, was taken up in only three centres in India, and that too, only cursorily. Similarly, in 1977 the government launched a scheme for the reorientation of medical education (ROME). This was introduced at the central level so as to inculcate a positive bias amongst students and teachers towards community health care. Medical colleges were to be involved in the direct delivery of health services in the rural and semi-rural areas. However, unable to make much headway in the noble aim of giving medical graduates a better grasp of the social realities directly impinging on health status, the Planning Commission decided to transfer the scheme to the state level from the period beginning with the Eighth Five-Year Plan. Experiments to ruralise medical education by setting up teaching hospitals in rural areas—such as Sevagram Medical College in Maharashtra—have also failed to make any impact.

As early as 1943, the Bhore Committee recommended the dire need for 'preventive and social medicine' in the curricula of medical colleges. This was upheld by the Mudaliar Committee in 1959 and clearly outlined by the Medical Council of India in 1964. PSM was to be a process of reorientation for the faculty and the existing dated curriculum, not just another speciality or para-clinical subject. Indeed, it was envisaged to be a joint programme with all departments, thereby permeating the entire course. However, far from becoming an integral component of medical education, it has only been marginalised and neglected. There also exists a gross confusion between means and ends. On the one hand, PSM departments have minimal or no contact with hospital teaching or services, and on the other, field practice in rural and urban areas under their supervision results in minimal participation by the faculty of the PSM departments. Thus, medical education has not only failed to emphasise subjects like PSM, community health and family practice, but has further distorted medicine into what is at best a meaningless intellectual exercise.

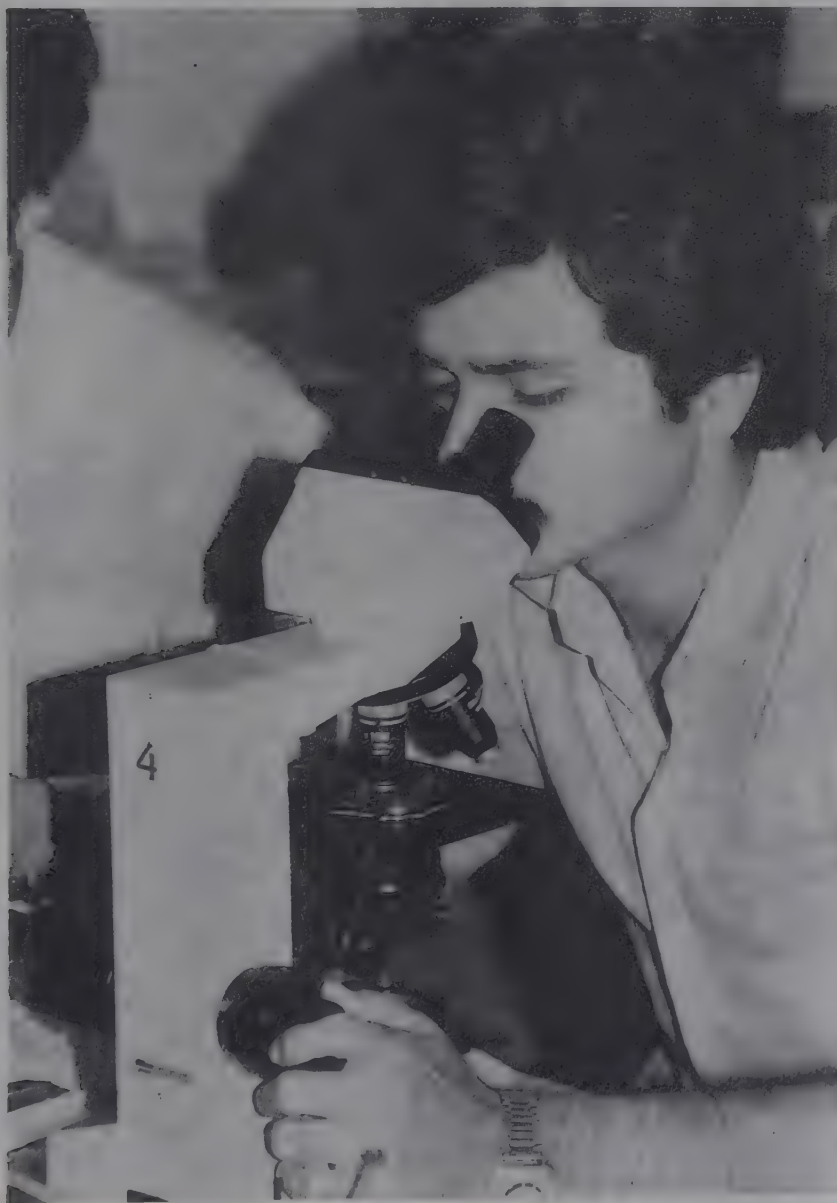


What Sort of Medical Training do our Students Need?

It is necessary to reorient medical education to suit the needs of our country. The educational system should be patient-oriented rather than hospital- or disease-oriented. Priorities need to be specified to modify the medical curriculum so as to emphasise primary health care for the people and inspire students to be doctors of health rather than doctors of medicine. Medical education should clearly relate to the welfare of the community and should have social accountability.

According to J.S. Bajaj, the curricular contents and teaching-learning activities must be directed to achieve:

- a proper balance between technological and humanistic medicine
- a more holistic approach covering promotive, preventive, curative and rehabilitative aspects of medicine
- a proper balance between tertiary care hospital-based and primary care community-based education



- a shift in emphasis from the use of teacher-oriented to learner-oriented methods which would include self-initiated, self-directed learning and self-evaluation
- a progressive change from a narrow, discipline-oriented teaching to a problem-oriented approach
- a shift from theoretically-oriented to experiential learning
- a major change from the practice of factual memorisation and recall to the acquisition and practice of professional skills
- a major shift in the medical teacher's role from imparting a defined quantum of knowledge to that of facilitator and motivator of community-based learning

J.S. Bajaj also identified the major areas of specialisation for the management of Indian health needs and problems. These are pertinent to what is required at the first level of referral in the national health system, i.e., the community health centre/*taluk*/sub-district hospitals. These disciplines are: general medicine, general surgery, paediatrics, obstetrics and gynaecology and public/community health.

Indian medical students should have a sound background in tropical or endemic diseases and those directly accruing from poverty. They should be able to treat their patients without immediate recourse to specialists and should be able to work with rudimentary technical facilities. Extensive knowledge on sanitation, nutrition and preparation of safe drinking water is essential for a medical graduate, not brilliance in the use of high technology, specialised pharmacology and advanced treatment. Preventive medicine should form an essential and major component of the curriculum. Students should be capable of organising a sanitation campaign, be familiar with immunisation schedules, understand a growth curve and be conversant with local foods and dietary habits. They should also have a solid foundation in planning, epidemiology evaluation, administration and health education. Students should also be taught how to carry out surveys, gather statistics, evaluate risks and determine priorities.

The concept of essential drugs and rational drug use should also be introduced in the curriculum. Skills required to evaluate rational therapy and sources of drug information should be developed, awareness of social, cultural and economic factors influencing drug use and health-seeking behaviour of individuals should be inculcated, and the value of the doctor-patient relationship in promoting rational drug use should be highlighted. A young health professional should graduate with a keen sense of awareness of the numerous dangers and threats to the consumer in the field of health. Medical education should prepare the student for rational prescribing practices, taking into consideration the cost of medicines in view of the patient's financial and social situation. The

student must be taught to assume the role of an educator, particularly when prescribing drugs, as drug reactions and side-effects are usually not provided in the local language on packaging. Further, students should be trained to lend legitimacy to consumer and public interest groups so as to give a professional and factual basis to such movements.

It is now recognised that the emotional aspects of disease and illness cannot be turned aside lightly. Persons trained in primary practice have to cultivate skills in listening, counselling, sympathising, and understanding what others might regard as trivial, non-medical aspects.

The inadequacy of the medical curriculum in imparting adequate knowledge of nutrition has been particularly palpable. While the profile of diseases in India reveals significant morbidity on either end of the spectrum of nutrition-related disorders, the curriculum offers only perfunctory inputs on this all-important subject. Even in medical education in the West, the inadequacy of nutrition education was keenly felt and in 1984 a committee on nutrition in medical education was appointed to examine the curriculum of the nation's medical schools. The report published in 1985 concluded that nutrition education programmes in medical schools in the US are largely inadequate to meet the present and future demands of the medical profession. The committee recommended that the basic principles of nutrition be introduced simultaneously with other pre-clinical services as an independent course and the principles be reinforced later in clinical practice as applicable to patient care. It was recognised that the importance of nutrition is not sufficiently appreciated by the faculty and that its impact is significantly diminished when it is not taught as a discrete entity. It was recommended that to cover topics such as energy balance, role of specific nutrients and dietary components, nutrition in the life-cycle, the role of nutrition in disease prevention and treatment, nutrition assessment, protein energy malnutrition, the risks from poor dietary practices stemming from individual, social and cultural diversity, etc., a minimum of twenty-five to thirty classroom hours should be devoted during pre-clinical years. A survey in the US identified nine schools which had well-established programmes in nutrition; MDs play a strong, central role in teaching and in demonstrating its application to clinical medicine.

In the Indian context, even basic information on nutrition in terms of calories, visible and invisible fats, different types of proteins, bioavailability of nutrients, vitamins and elements, the influence of the environment, etc., are not covered adequately from a practical perspective. Staff with a strong background in nutrition science, research and application to clinical medicine should be assigned to the development of nutrition programmes in medical schools.

Such recommendations are not new and have been reiterated in many forums and expert committee docu-

ments. However, it is unfortunate that despite periodic exhortations, proposals to substantially change the curriculum have remained mere rhetoric. The Jamnagar and the Kottayam experiments are the only two real attempts and even these have not been well-recorded or circulated to the teaching medical profession for debate, consideration or emulation. It is also lamentable that in 1981, the MCI stated that 'the deficiencies which exist at present are attributable more to a failure of implementation of the council's recommendations and the absence of a system of continuous monitoring and not due to defects in the course and curriculum prescribed' (see Narayan 1984). Perhaps an important reason for the failure to reorient the curriculum is that while committees and policies have been forthright in what they envisage to be a 'model' curriculum, they have never mentioned the process of change in real terms. The practical, concrete steps necessary to achieve the recommended changes are not elucidated or even outlined. Also, no effort has been made to facilitate the acquisition of appropriate skills by teachers that would encourage the independent and self-directed study that is constantly reiterated. Similarly, emphasis has been placed on problem-orientation as a key principle for curricular planning, without providing opportunities to educators to acquire skills for the development and implementation of problem-based learning.

Even when a separate curriculum was initiated in the area of community medicine, the broad community of teachers who were expected to turn this programme of study into reality were not involved or taken into confidence during the entire exercise. Both the teachers



and educational administrators naturally had no clue about the aims of this new discipline. It is therefore not surprising that community medicine remains a paper exercise, just another subject that is taught by the faculty of PSM departments, to be learned by students for examinations alone.

Faculty

While grievances are being voiced from various platforms against the current state of medical education in India, it is curious that the crucial role of teachers in the field has eluded the attention of the commentators. The status of medical teachers is determined by a number of factors such as the subject taught, the competence of the individual as a practicing physician and his image within the teaching profession. Teachers who specialise in clinical subjects are accorded the most importance for doctors in these disciplines interact with patients who require immediate and often urgent attention. Para-clinical fields like pathology and radiology do not require specialists to make direct interventions in treatment and therefore related professionals are not as important. The faculty of PSM do not feature in either of these two broad divisions and are therefore ignored altogether. These biases are not only maintained by society at large, but are also reflected and reinforced in the commentaries and deliberations by policy-makers, planners and administrators. On the whole, medical teachers are regarded by political authorities and officials as doctors first rather than as teachers. A multidisciplinary faculty competent to teach subjects such as humanities, biobehavioural sciences, nutrition and other aspects germane to holistic health should be inducted.

Most clinical teachers have a commitment to private practice and usually spend the latter half of the day seeing patients at home or in their clinics. It is not possible for a clinician successful in private practice to do full justice to his teaching job and hospital responsibilities as well. A base in a medical college is unfortunately viewed as being advantageous in the cut-throat competition of private practice, apart from being a referral channel to one's own private clinic. It is interesting to note that this

phenomenon of private practice by medical faculty is widespread despite the fact that the MCI recommends full-time, non-practicing teachers. Further, because of these exhortations, a nexus of mutual interest has developed between the political-bureaucratic authority and the teaching community at large.

The attraction towards private practice may be largely due to the fact that medical teachers are underpaid as



compared to similar academic positions outside their profession. There is also a discrepancy in the salary structure of centrally supported medical institutions and those existing in the various states. Thus, service doctors, including senior faculty, are in a perpetual state of unrest and agitation. The independence of teachers will begin only when there is no longer any need to rely on private practice to meet financial needs. The last two Central Pay Commissions stressed the need for scientists and technologists to be accorded higher status and emoluments.

In order to effectively implement the defined educational strategies, criteria for the selection and promotion of teachers should be modified so that the competence of teachers as facilitators and motivators for student learning can somehow be improved. Presently, when recruitment or promotion decisions have to be made, the criteria for doing so comprise only academic merit and demonstrable research capabilities. The skills required of an educator and the qualities expected of a role model are hardly ever considered. In addition to proficiency in their subjects, teachers need to be knowledgeable about teaching methodologies and techniques of education. Currently, there are no effective means of monitoring and assessing the teaching-learning process in medicine. Training programmes and frequent seminars and workshops on educational technology should also be organised for the upgradation of teaching skills.

HOW DO YOU
DEAL WITH
THIS THING?



Unless measures are taken to ensure job satisfaction, medical colleges will always remain short of dedicated teachers. If the teaching standards cannot improve, the quality of our medical graduates will always fall short of the potential, no matter how rational or appropriate the curriculum or teaching methods might be. However, in any attempt to make modifications or improvements in the existing system—be it regarding the curriculum, teaching techniques or any issues related to medical education—it is imperative that the teachers be invited to participate actively in the formulation of any programme for it is they who will eventually be expected to implement the same. Unfortunately, however, this has never been done.

Attitudes and Values of the Budding Professional

Together with devising an appropriate curriculum for students, efforts must be made to foster the development of correct attitudes. According to Michel F. Lachat and Irene Borlee-Grimee (1987), this entails paying attention to: 'community-based health as well as to individual health, the concept of equity in health care delivery, teamwork and respect of health workers, the intersectoral aspect of health promotion, the importance of community involvement, and the adaptation of resources and techniques to local contexts'.

Today, the schism between science and technology and ethical values has made related disciplines, particularly medicine, a hazard to the health of the community when in fact, there is great potential for a radical positive transformation of the health status of the people.

The lack of any liberal education, especially in the social sciences and ethics, precludes a humanitarian approach. The intense pressure on the student to specialise in order to survive professionally further hampers the medicos from seeing patients, leave aside society, as a composite whole. Today, we are gradually having to settle for the super-specialised technologist who has left his humanity and social conscience far behind.

While the National Health Policy document requires a doctor to practise prevention of disease, promotion of health of the people, rational drug therapy, appropriate technology and holistic health care, it is sad that he is remunerated and recognised proportionate to the sophistication of technology he practices, quantum of services rendered, and the revenue he generates. This is indeed a paradox and a patent contradiction between what is preached and what is practised. Consequently, instead of appropriate technology, doctors uniformly aspire to acquire postgraduation and super-specialisation. Though it is generally agreed that the skills acquired through super-specialisation are tailored to gain optimal compe-



tence in tertiary level health care and medical education, in practice, it mostly entitles doctors to added scope for private practice and personal profit.

When we talk of infusing our medical students with appropriate values, we need to look far beyond the immediate curriculum. For, beginning with the preliminary stage of selecting students on the basis of marks or money as the only objective criteria for admission, medical education is imbued with a strong elitist bias. Teachers further reinforce this, especially those who have a parallel private practice, for their attitudes and lifestyles naturally conform to those of the elite. It is these values that make our doctor unsuitable for rural practice as students from elite backgrounds are further alienated from the masses and even the students with a rural upbringing are gradually transformed and alienated from their traditional culture. Thus, most doctors today cater primarily to the elite, or, as an alternative, migrate to the Western or oil-rich countries where they feel more comfortable professionally. Those who remain in India find the work environment unsatisfying and out of frustration look to money for compensation.

Several social-psychological reasons have been cited for the peculiar traits and attitudes of medical graduates who have to undergo the gruelling routine of a medical college programme. The structure of the existing

educational process is demanding with pressures that require attention to detail, long hours of exhausting study and masochistic rigours. The more difficult, extended and rigorous the training period, the more rewarding must be the offsetting incomes in the 'practicing years' of the physicians. In some specialised areas, the training period can be as long as twelve years. It may be argued that the cost incurred by students is not only in terms of tuition, books and direct support costs, but also the opportunity cost represented by income lost during the extended years of study. After subjecting students to this lengthy and gruelling educational experience, which often involves deferment of marriage, family and setting up of a home with the material

masochistic and expensive training that they have suffered has been well worth it.

Another major conditioning factor is the on-going subtle emphasis on the elevated status of the doctor. The symbols reinforcing physician status are numerous, ranging from the white clothes of the doctor to complete freedom in treating patients. If an attending physician tells an intern that a particular patient cannot be treated in the hospital, the trainee cannot challenge the physician's judgement. This unquestioned power is often what the medical student looks forward to on realising his identity as a 'doctor'.

There are several dimensions to the confidence in the physician's knowledge, skill and overall status or superiority which other health providers or personnel do not enjoy. Such social and economic status is warranted to a certain extent in the present system because physicians do receive unusually challenging assignments involving a remarkable measure of responsibility. There has been very little research in the attitudes of physicians after they leave medical training but it is evident that the values of physician status and cohesion have resulted in the profession's reluctance to publicly criticise its own ranks.

Administration

The efficiency of administration in medical colleges and allied hospitals has an impact on the quality of medical education and patient care. The most frequently cited criticisms in this regard relate to the inadequate administrative experience of personnel, insufficient time available to senior administrators, especially heads of departments, and a general attitude of unconcern.

The only qualification necessary for an institutional head, as laid down by the MCI, is five years professional experience. Obviously, there has been no effort to improve the area of health planning and management.

Infrastructure

In recent years there has been considerable pressure on the teaching community to select appropriate health facilities and material for the instruction and teaching of

Box 2

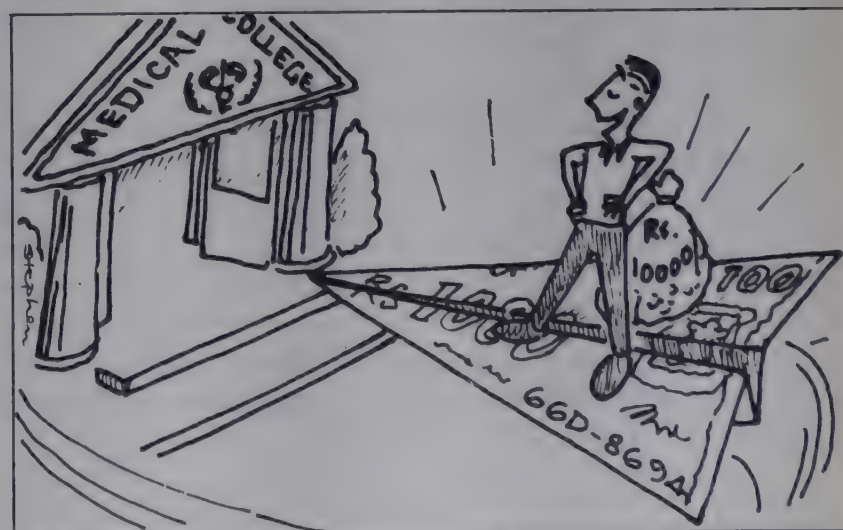
CAPITATION COLLEGES

The system of charging heavy capitation fees from students cannot stand the canons of either social or economic justice. Private medical colleges have been charging capitation fees of 4 to 5 lakhs, often with variable scales linked to students' marks. Entry is not restricted to students in India, and in Kasturba College, one of the older colleges in Karnataka, nearly two-thirds of the students come from abroad, including the US. Priority is given to those who can pay in dollars—US \$ 30,000 for the entire course. This college was set up in 1953 and its degrees are recognised by the MCI.

Karnataka has the dubious merit of having the highest number of medical colleges. Politicians have openly endorsed the establishment of capitation colleges with Gundu Rao making a public statement about the two gold mines in Karnataka—'Kolar Gold Fields and capitation colleges'. An intelligent but poor student finds the doors of these educational institutions closed whereas mediocre students from rich families are comfortably accommodated. Some private professional colleges obtain assistance to meet their deficit bills from local bodies like the municipalities and *zila parishads* in return for free admissions for the children of their elected members or employees.

With the public outcry over such colleges, the mercenaries of education have renamed these 'donation' colleges. Since a large percentage of the donations represent undeclared assets, it suits all concerned, including the politicians.

comforts, it should not be terribly surprising that doctors are preoccupied with making money. This experience may tend to squeeze the idealistic traits from a student. In one view, the physician emerges with an obsessive-compulsive personality. The 'rite of passage' from medical college to internship, residency and certification is long and arduous, encourages cynicism, loss of humanitarianism and a shift of attention to the status and worthiness of a physician. Not only do the courses emphasise the physical rather than the psychological aspects of the doctor-patient relationship, but students are also taught that to develop a close relationship with the patient can be dangerous. At the end of their training the young doctors feel the need to prove that the



medical students. This is due to the fact that the inadequate physical facilities currently available have been a major cause of frustration amongst students and teachers, especially with regard to the logistics of giving students residential postings in community settings.

Even the best metropolitan colleges periodically face an acute shortage of teaching staff, especially in the non-clinical disciplines. Often this deficiency is accentuated by an increase in student numbers without corresponding increases in staff and augmentation of physical facilities. It is not uncommon to find a college doubling its admissions but with the same staff and physical facilities as before.

The lack of sufficient well-equipped libraries is another area of concern. Appropriate learning materials such as slides, audio and video tapes and other resource materials conducive for imparting requisite learning experiences are virtually non-existent. There is no mechanism for disseminating new information to health care providers in an efficient manner. In order to build a viable medical information network, it would be imperative to mobilise regional postgraduate institutes, pool all existing resources and services, and have the National Medical Library coordinate the network activities and programmes.

Facilities for continuing education and distance learning are presently restricted to a few sporadic efforts. These can in no way meet the needs and demands of health care professionals. The establishment of an apical

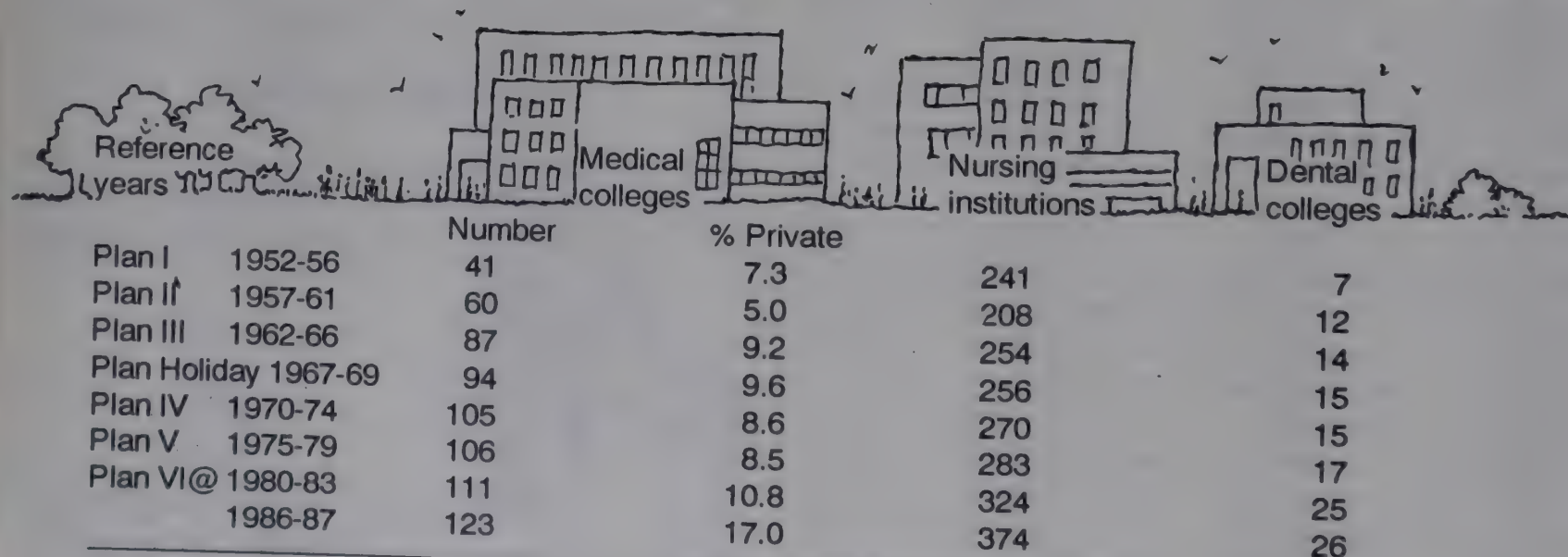
body, such as a recently constituted committee for continuing education in the health sciences, needs to be supported by resource centres for programme development and implementation. New technologies for distance education also need to be made available. This could be done through a network of centres within the operational framework of the open university system.

Footing the Bill

Public resources are used to develop medical manpower in this country. It is the state which is almost entirely responsible for aiding and supporting medical education. The money is raised mostly from tax revenues. Direct payments from students by way of fees constitutes only a negligible amount. Between 1951-52 and 1982-83, the state's expenditure on medical education has expanded at a rate of 2.8 per cent a year, far exceeding the growth rates of total state health expenditure and total government expenditure.

Due to the paucity of detailed statistical data, it is not possible to calculate exactly how much is spent on the learning of each medical student. Although supportive costs cannot be estimated, we do know by extrapolating data available for Maharashtra, for instance, that the cost per doctor for medical college alone (without calculating for capital outlay or infrastructure) was about Rs 84,952 in 1983. With Rs 50 million being the average annual cost

Figure 1
Medical Education Infrastructure
1951-52 to 1986-87 (figures at end of period)



@ 4 year period including 1979-80 annual plan and first three years of Sixth Plan.

Source: Health Information of India (earlier called Health Statistics of India and Pocket Book of Health Statistics), CBHI, GOI, various years

in that year for a medical college-cum-hospital in Maharashtra, the yearly costs per qualifying student for the teaching hospital was approximately Rs 3,72,312. Of the total expenditure on medical education, on average, 84 per cent was spent between 1981 and 1989 on the training of medical MBBS doctors alone in this state.

This expenditure is phenomenal, especially in view of the fact that about 75 per cent of the graduates go to the private sector and out of every 100 allopathic doctors in the private sector, between thirty-four to fifty-seven migrate abroad each year.

It is not only the Western bias in the medical curriculum that encourages this 'brain drain' but also international funding and policies which perpetuate the system. All the top medical colleges in the country have been established with the help of imperialist funds and agencies. Add to this the incentives available from international agencies like the Rockefeller Foundation which offers attractive scholarships to medical students to study abroad.

Besides medical manpower available from allopathic training colleges, we also have practitioners of indigenous systems of medicine. Although the latter get a very small portion of total medical facilities, the manpower generated is much larger. Thus, although the total number of health care personnel is adequate to meet the needs of our country, the doctor-population averages are misleading because of the mentioned patterns of settlement in urban areas and individual or private practice.

In order to use public resources for public benefit, investment and expenditure patterns need to change radically. Private colleges should not drain public funds. Further, expenditure must be judicious with more resources being diverted towards nursing personnel, for example, whose numbers are only one-fourth of what India needs today.

DELHI
79
USA

Figure 2
Migration of Doctors to Other Countries:
1951-52 to 1986-87

Reference years	No. of doctors migrating	Annual average
Plan I	4050	810
Plan II	5171	1035
Plan III	5950	1190
Plan Holiday	7200	2400
Plan IV	15450	3090
Plan V	21300	4260
Plan VI@	18548	4637
1986-87	5304	5304

@ 4 year period including 1979-80

annual plans and first three years of Sixth Plan.

Source: Health Information of India, CBHI, various years.

The Brain Study: Phase I -

Analysis of ordinary passports issued during 1960-67, IANR, 1970.

Policy and Analysis

Although medical education in India dates back to the Vedic period, the present situation can be largely attributed to the policies adopted after Independence. These, in turn, were greatly influenced by the legacy of the British who had sown the seeds for a system modelled after the European counterpart, totally uprooted from its own cultural and historical moorings, constantly looking to the West for orientation and direction. Indeed, the recommendations of the committee appointed by William Bentinck still form the sacro-

Table 2
Medical Education and Teaching Hospital Expenditure
in Maharashtra, 1981-1989
(Rupees in Millions)

Reference year expenditure	Medical education expenditure (1)	Medical colleges expenditure (2)	Teaching hospitals expenditure (3)	Total medical education expenditure (1+3)	Column 2 as per cent of column 1
1981-82	112.49	97.71	239.03	351.52	86.9
1982-83	122.21	104.63	241.87	364.08	85.6
1983-84	143.70	121.54	272.46	416.16	84.6
1984-85	150.24	124.96	299.83	450.07	83.2
1985-86	162.11	138.82	334.69	496.80	85.6
1986-87	186.68	158.11	399.41	586.09	84.7
1987-88	203.48	172.39	447.78	651.26	84.7
1988-89	244.87	192.32	393.67	638.54	78.5

Source: *Radical Journal of Health*, vol. 3, no. 4, 1989.

sanct pillars of medical education today.

The medical colleges in British India, established under the vigilance of the General Medical Council of England, were aimed primarily at training doctors to meet the health care needs of British expatriates. Thus, the thrust of the education imparted was essentially curative. In 1943, the Bhore Committee appointed by the government for 'Health Survey and Development' lent a new dimension to medicare in that it stressed the need for preventive medicine for the benefit of the people. Several years after Independence, the Mudaliar Committee was asked to assess the progress of medical care and education and to determine whether the targets of the Bhore Committee were still relevant. While the committee proposed important reforms in the PSM curricula and rural postings during internships, emphasis was placed less on preventive aspects of health care and more on increasing the number of doctors so as to reach out to more people. Although the Mudaliar Committee had suggested that each college should admit no more than 100 students each year, this recommendation was not honoured in the years to come. A network of static units for curative treatment was created and medical manpower developed in a warped manner in so far as the ratio between medical and paramedical personnel was concerned. The myth that a high doctor-population ratio would engender better health care was put forward to justify an increase in medical colleges. While there was a demand for expanding medical education facilities, it had nothing to do with health for all. To employ the increasing numbers of doctors, state health services expanded rapidly, the Employees State Insurance Scheme was launched and the private industrial sector opened up medicare facilities for the doctors. In the 1970s, the rate of expansion stabilised somewhat and a paradoxical situation emerged. The employment market for doctors was squeezed, their numbers in the employment exchanges started swelling, opportunities abroad were reduced, the field of private practice became tremendously competitive and junior doctors began to agitate. In 1975, the Srivastava Committee called for a halt to this proliferation of what it saw as an increasing number of inappropriately trained medical graduates who were in any case either migrating abroad or setting up business in urban areas.

In 1983, the National Health Policy was formulated in line with the recommendations of the Bhore and Mudaliar Committees. It reiterated their ambition to take health services to the doorsteps of the people and elicit the community's participation in the process of health development. Because improved health status has a direct bearing on an enhancement in the quality of life of the people, health development was seen as an integral component of overall human resource development. As in all the policy formulations, however, the concrete steps to be taken to realise targets repudiated the expectations. Emphasis was again placed on increasing

the number of state units and manpower development.

In 1986, the National Education Policy within the Health Policy reiterated the noble aims of striving towards the development of 'basic doctors' (a concept dating back to 1970) who would be equipped with the requisite skills, knowledge and attitudes to meet the health needs of the country.

The question arises as to whether the unsatisfactory state of medical education today is basically a fault of the educational system, the myopic view of health professionals or the result of deliberate policies and selective



implementation of recommendations to satisfy the needs and aspirations of the elite. While various committees have made significant and often astute observations and suggestions, they have all failed to question the deeper issues of social justice. We cannot divorce medical education and practice from the overall socio-economic and political structure of our society. We cannot expect piecemeal changes in the system to radically alter the nature of our medical system which has progressively become a new form of business consistent with the market economy. Since the decisions on health are made jointly by the medical profession, bureaucracy and politicians, with the strong influence of the pharmaceutical industry, it is not surprising that this elite group views Western medicine based on high technology as the major beneficiary of health resources. Since the pattern of illness among these decision-makers has also changed, thus freeing them from the ills of malnutrition, the thrust has been on curative medicine of an increasingly sophisticated nature. However, it is not just the health characteristic of the upper classes that has given direction to the development of medical education. The require-

ments of the elite are rooted in their overall socio-political needs and permeate even the curriculum to match and sustain their ideological requirements. For instance, a recent review of a standard PSM textbook revealed that the authors had presented a case in which all problems concerning health were medicalised, in which they proposed that medical solutions could be independent of and even override social factors, where society was presented as a cohesive, homogeneous entity in which everyone had almost equal access to health care, and where they attributed the major reasons for ill-health to certain detrimental activities of the individual.

Any realistic strategy for the reorientation of medical education must recognise that only those changes that do not conflict with the interests of the medical profession and the dominant class can be implemented. Rhetoric originating from the government will not help the realisation of any of the noble aims and objectives for medical education proposed from time to time. Until the political and economic structure becomes more sensitive to the health needs of the people, our system of imparting education to future generations of doctors will continue steadfastly with perhaps only minor modifications.

Box 3

MEDICAL EDUCATION IN NEPAL—A BRIEF REVIEW

Nepal is one of the poorest countries of the world, a fact reflected in the overall grim health status. High infant, maternal and other mortality rates, low life expectancy, high birth rate and high morbidity rate—every indicator points to an abysmally low standard of living. The Government of Nepal seeks to remedy this state of affairs through specially designed programmes, policies and infrastructure.

Till 1972, Nepal was totally dependent on foreign-trained physicians and specialists for manning its health services. The Ministry of Health was the sole authority for training health personnel but it was only able to provide paramedical workers. To meet the need for health personnel at the middle and higher levels, the Institute of Medicine was established in 1972 within the Tribhuvan University in Kathmandu as part of a comprehensive education plan. It remains even today the only medical school in Nepal. Through its eleven extension campuses located in different parts of Nepal, the Institute of Medicine runs ten certificate programmes, four bachelor-level programmes and five postgraduate programmes.

The mandate of the faculty was to produce health manpower of various categories as per the requirements of the health system of the country, skilled in developing continuing medical education and in carrying out need-based research. The entire thrust of the programme was to meet the specific needs of the country in order to ameliorate the poor health status of its people. It was recognised that the primary objective of medical education is to produce personnel sensitised and trained in tackling health problems of the society in which they operate. This rules out uniformity of approach of method and renders invalid any value judgements about the standards.

Since it was established without the basic groundwork, the Institute initially trained middle-level health personnel who were awarded a 'Certificate in Medical Sciences' on successful completion of the course. The training was imparted on the basis

of current trends and theories of medical education and was focused to meet the immediate needs of the country. It was a radical departure from the traditional approach to auxiliary and paramedical workers, which still finds popular acceptance in many parts of the world.

After ten years of schooling and good academic performance, the students are admitted to the course. Once admitted they undergo rigorous training for two and a half years in medically relevant aspects of physics, chemistry, botany, zoology and applied mathematics, along with basic human biology and preventive and curative aspects of major health problems in Nepal.

After obtaining the Certificate, the students are eligible to become middle-level health workers such as Health Post In-charge. They can go higher in the bureaucratic echelons and even have the option of pursuing medical studies, provided they have a good academic record and pass the entrance examination for MBBS. They are also eligible for medical studies in other countries. The students generally preferred to go abroad before the Institute of Medicine initiated its own MBBS programme in 1978 when it acquired the requisite infrastructure and expertise.

The MBBS programme offered by the Institute of Medicine is also based on the premise that the course content must be tailored to meet the specific needs of the people of Nepal. It focuses on innovation rather than convention. For instance, self-directed, problem-based, integrated learning is conducted throughout the course. Various disciplines of basic medical and clinical sciences are integrated within the parameters of the community. Mobility of lower-level health personnel to higher-level courses allows for greater interaction and sensitivity within the health care system.

Unlike in the conventional system, the Institute of Medicine does not insist on the prerequisite of a two-year pure science



course after high school to avoid maximum age restrictions. Middle-level health workers are exposed to the health needs of the community and are able to assess the possibilities and limitations of the health care delivery system before responding to them. The insight into what will be successful in actual work situations makes their subsequent learning in MBBS much more meaningful and relevant.

The total duration of the MBBS course is four and a half years with 7,408 credit hours. It is divided into three phases at the end of which an examination is conducted. During the first phase of two years, students are taught the fundamentals of community medicine and pre-clinical or basic medical science. Anatomy, physiology, biochemistry, pathology and pharmacology are taught in an integrated manner. For instance, to impart knowledge on one subject like the respiratory system, different teachers of the pre-clinical discipline coordinate with one another to achieve a meaningful integration of information and concepts.

During the second and third phases, which are of one year and one and a half years duration, respectively, clinical disciplines are taught in the hospital along with bedside clinical work. In both these phases some time is provided for theory and practical experience in community medicine. A major part of the course is devoted to fieldwork among the rural communities of Nepal.

The final examination is conducted by internal and external examiners, the latter hailing primarily from India, but also from Bangladesh. Successful graduates have to undergo a year-long rotating internship before they can get permanent registration from the Nepal Medical Council.

The comprehensive community-oriented training equips the graduates to undertake the responsibility of affording a healthy living to their society. Besides handling emergencies and common diseases, they are able to understand and deal with the implications of health-related problems in their proper perspective. In servicing the community as health team leaders, they are able to plan and manage comprehensive health care

in a given area.

At present, resource constraints prohibit the Institute from taking more than thirty students per year. But plans are on the anvil to increase the number of aspirants. Initially, only those candidates were considered eligible for the MBBS programme who had completed the Certificate in Medical Sciences course and had worked in a rural health centre for two to three years. However, bowing to the pressures from the influential elite who did not relish the idea of their offspring working in remote rural areas, the University authorities agreed to allot 50 per cent of the total seats to students who had completed the two-year Certificate in Science course.

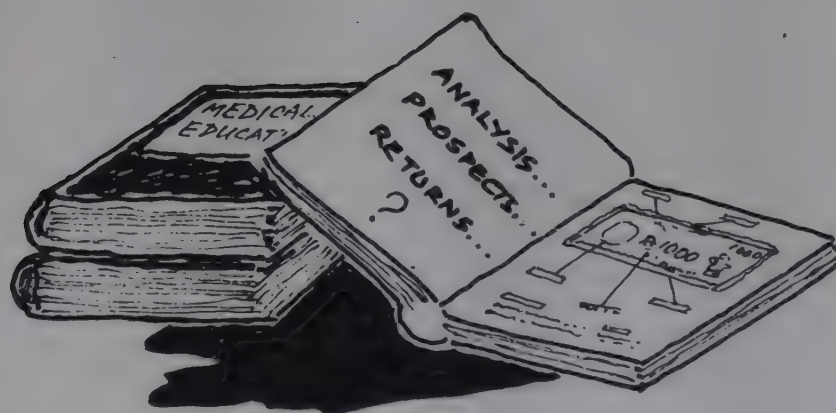
Any novel endeavour has teething troubles. The Institute of Medicine has faced criticism for its innovative programmes from many quarters—the foremost being the medical community itself, which, being oriented in traditional medical education, could not appreciate the focus of the various programmes. Only the passage of time and the proven competence of the graduates forced them to abandon their prejudices and hostilities. Other drawbacks which beset the programme are the lack of experienced and committed faculty members who understand its underlying spirit and philosophy and a paucity of adequate and appropriate teaching/learning materials.

Difficulty in obtaining admission to postgraduate courses elsewhere has also been a major problem. Traditional medical schools do not meet the expectations of the graduates who wish to pursue higher courses for specialisation. These schools either hesitate or refuse to accept these students in their postgraduate or residency programmes. This creates a need for similar innovative postgraduate courses by the Institute itself.

Despite a surfeit of problems and criticisms, the medical education programme in Nepal is appreciated for its novel approach both at home and abroad. Although no objective and formal evaluation has been done so far, the quality of work of these graduates working in different corners of the country has been rated by their seniors and by the general public to be highly satisfactory. Therein lies the hope.

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Nursing Education in India

Over the years, India's health structure has undergone fundamental changes. The most critical among them being the shift from hospital-based to primary health care, a shift which recognised that health is a basic human right. Nursing in India has come a long way to meet this challenge. From having no formal system of nursing education, today, India has over 400 nursing schools and thirty colleges affiliated to universities.

All educational systems have their roots in the socio-cultural milieu and changes in the former invariably reflect the changed requirements of the concerned society. Similar is the case with nursing education. Two major factors were responsible for the development of a formal modern system of nursing in India. First, the majority of births were being conducted by untrained *dais*. As a result, the rate of maternal mortality had assumed alarming proportions and had to be checked. Second, there were few lady doctors at the time and most women refused to be attended by males during childbirth.

Thus, in 1886, Ms Hewlett, a missionary, began training and assisting *dais* in safe delivery practices, after which they were issued certificates. The Victoria Memorial Scholarship was established and Madras began registering nurses and midwives. The first school for the formal training of Lady Health Visitors was started in Delhi in 1918. Prior to this they had no formal education and were trained on the job for three to six months. Thus, nursing education had its roots in the demands of our society, and has since been formalised and streamlined with the advancement of science and medical care. Before British rule in India drew to a close, several committees were established to guide new India's plans for development. In the sphere of health, first the Bhole and later the Mudaliar Committees were set up to guide India's health policy. Apart from recommending that new medical colleges and nursing schools be set up, the focus was on training other paramedical staff as well. The thrust was then and continues to be on the training of a new cadre of Auxiliary Nurse Midwives (ANMs), as also the training of *dais* in an effort to decentralise health care.

Prior to the Bhore Committee, general nursing, midwifery and community health nursing (for the cadre of Lady Health Visitor—LHV) were three separate courses. Both the Bhore and Mudaliar Committees recommended that LHV scheme be discontinued and replaced by a course in public health nursing for which trained nurses and midwives would be eligible. Although the Rajkumari Amrit Kaur College of Nursing in Delhi and the All India Institute of Hygiene and Public Health in Calcutta began this course in the 1950s, it was later discontinued.

Today, there are two levels of nursing education in India. The first offers a three-year diploma course in general nursing and a four-year B.Sc. in nursing, for which the candidates are required to have a 10+2 background. At the second level are schools for ANMs and multipurpose workers. Besides these, a two-year post-basic (diploma/certificate) course is also available for clinical specialities, administration, education, and B.Sc. nursing. Postgraduate programmes include M.Sc. and M. Phil. in nursing, and doctoral programmes can be taken in allied subjects in several universities. There are thirty colleges affiliated to universities which offer

Despite the number of schools and training programmes, the results are far from satisfactory. In terms of numbers, at the end of December 1990, there were 4.5 lakh registered nurses (including ANMs) against the required 9.5 lakhs. With the exception of Pakistan, India has the least favourable nurse-population ratio:



Table 1

Type of course	No. of insts.	Duration of course	Admission requirements	Annual admission	Annual turnout (approximate)
1. Certificate:					
Gen. Nursing and Midwifery	286	3 1/2 years	12 yrs. of schooling	9000	7256
Auxiliary Nurse-Midwifery	340	1 1/2 "	10 yrs. of schooling	9083	4264
2. Degree:					
B.Sc. (Nursing)	15	4 "	10+2-science subjects	250	219
Post-Basic B.Sc. (Nursing)	10	2 "	Registered nurse and midwife + 2 yrs. experience	230	123
Masters in Nursing	4	2 "	B.Sc. nursing +3 yrs. experience (2 yrs.)	65	32
3. Diploma:					
Psychiatric Nursing	1			—	25
Nursing Admn. and Nursing Education	2	10 months	RNRM	6	167
Public Health Nursing	5			—	109

Source: *The Nursing Journal of India*, vol. LXXIII, no.2, 1982.

B.Sc. courses in nursing, and five which offer M.Sc. courses. There are 390 hospitals where courses in general nursing are held, training 8,000 nurses each year. There are 411 schools for ANMs attached to district hospitals and PHCs. Several others are run privately by missionary organisations. The trainees are required to be matriculates, and the duration of the course is one and a half years. About 20,500 ANMs are trained each year. An ANM with five years' experience can qualify to be trained as a health supervisor, for which there are forty schools in the country. Table 1 provides details regarding the type of course, number of institutions offering the course, and the duration of each.

Table 2

Ratio of Nurses to Population

Country	One nurse to no. of people
USA	190
UK	207
Japan	209
Malaysia	541
Sri Lanka	1453
India	2251
Pakistan	4492
Thailand	1104

On average, there should be one nurse for every three patients in a hospital. Hardly any nurse in India is responsible for less than twenty patients. In villages, the distance to be covered is far too great, with the result that an ANM spends most of her time travelling and keeping records with little time left to attend to community needs.

In terms of quality, questions are being raised about the training curriculum and the role of nurses in society (see Box 1).

Box 1

NURSING CURRICULUM

In 1963, the Indian Council of Nursing set out to revise the general nursing and midwifery course with the assistance of the World Health Organisation. This was done in recognition of the changing roles of nurses and ANMs.

In 1982, the syllabus was revised once again, this time in accordance with the changed needs of society, i.e., in accordance with the needs of primary health care. The INC recommended that the PHCs and the district and *taluka* hospitals should serve as training centres for ANMs, in order that they might be able to gain adequate experience in rural areas. They also recommended that a student spend only eight and a half hours in the hospital, while the rest of the time be devoted to practical field training. The INC also increased the number of hours devoted to teaching courses in community nursing—from 100 to 576. A paper on community health nursing was also included in the curriculum for third-year students. This course covered such topics as nutrition and health education, and laid greater stress on the needs of the community than on patient care.

Any curriculum can be planned with two things in view. First, the emphasis can be on the subjects that the planners of the syllabus feel the nursing staff ought to know. Second, the emphasis can be on the range of skills the staff is expected to practise. If the latter emphasis is to form the basis of a syllabus, it is essential to first fully analyse and comprehend the tasks that are required to be performed by the staff. As this paper shows, nursing schools in India continue to produce graduates with little or no abilities outside the hospital set-up. The focus continues to be on the subject matter rather than on the needs of the community and the skills required to meet them. For instance, theoretical accomplishment within the hospital as part of the requirements of graduation will not enable an ANM to train a *dai* or supervise deliveries within the homes of rural people.

Are they meeting the needs of our population? Are they responsive to community needs? Should they merely play a role in curative health care or be able to play a rehabilitative role in the community? Despite the revised syllabus which took into account the shift in emphasis towards decentralised health care, and despite the training of different categories of nurses, the profession is beset with problems. There is an urgent need to examine the reasons for this. Is it because a sufficient number do not opt for this profession? Is there some inherent defect in the educational system? There is no doubt that the number of personnel would depend on the number of people with adequate aptitude and

qualifications to take on the profession. It would depend as much on the number of institutions with the necessary facilities to prepare them with the appropriate skills, knowledge and attitudes. The role of the nurse must change from assistant to the physician to counsellor, supporter and assistant of the patient and his/her family. To meet this need, nursing education should itself be equipped to instil in an individual the commitment and compassion necessary to play an active role in preventive health care.

Nursing in the hospitals and community leaves a lot to be desired. Their knowledge and skills are not adequate to meet the needs of a changing society. Unfortunately, India has not been able to shake off the social stigma attached to the profession itself. Many regard it indecent for women to attend to the needs of a male patient, while others find the profession demeaning as the nurse is often called upon to render personal or even menial services for both patients and physicians. Certainly, 'well-to-do' families are never represented in this profession. The scarcity of nurses could also be attributed to the fact that education, per se, is restricted for women in a society like India which regards any investment in females as a waste of precious resources.

The profession also suffers because nursing education has not been standardised. The educational level varies across states, with each state council of nursing laying down the criteria for admission. Unfortunately, the Indian Nursing Council, which is opposed to this, remains a body in name only, with few regulatory functions. Even private hospitals are free to start so-called nursing education courses.

Apart from the three-year diploma course and the B.Sc. in nursing, all courses of general nursing are not affiliated to the formal system of education in hospitals where the stress is on service delivery rather than on education and training. Although the INC has laid down the requirement of one tutor/clinical instructor for every ten students, this too remains on paper alone. The shortfall increases the workload and the quality of teaching can only suffer. Several tutors of the old order have not been reoriented with the spirit and aims of the revised syllabus, as a result of which they continue to concentrate on curative health care to the detriment of preventive and promotive aspects. Nursing schools and colleges are also confronted with the problem of inadequate facilities and infrastructure. Lack of funds, another area not under the direct control of the educator, lack of teaching aids, inadequate library facilities, and absence of a problem-solving approach are only a few of the problems. Long hours of work at the hospital do not allow a student nurse to concentrate on learning. Teaching hours are comparatively few and nurses cannot acquire all the necessary skills—in attitudes and efficiency—in the hospital alone. Lack of supervision by trained personnel is also a lacuna. Furthermore, there is no provision for refresher courses in new subjects in the

NURSING REGULATION IN INDIA

The law relating to nurses cannot be found in one consolidated enactment. It has to be gleaned from several sources, at least three important sources of law: (i) central legislation on the subject; (ii) state enactments on the subject; and (iii) the uncodified law of India, in so far as it is relevant to the legal rights and duties of nurses.

The legislation contained in the Indian Nursing Council Act of 1947 does not lay down the duties and responsibilities of nurses, but is mainly intended to introduce uniformity in the standards of education, training and examinations. It also provides for inter-state reciprocity in such matters. It appears that the present Act replaces an ordinance promulgated in 1947, for this purpose. The Central Act, as mentioned, is merely concerned with the recognition of the qualifications. The legislation does not seem to contemplate disciplinary proceedings for misconduct.

It is really the state legislation that is of greater practical importance for the professional conduct of nurses. For example, the Bengal Nursing Council Act of 1934 contains provisions not only for the council for the state, but also registration, removal of a person's name, and other disciplinary proceedings. It prohibits non-registered nurses from unlawfully assuming the title of 'registered nurses', it also prohibits unregistered persons from being employed as nurses in a dispensary, hospital, etc., supported by public or local funds. The state nursing council is empowered to remove registered nurses from the rolls for criminal conviction for certain offences or for an undesirable defect in character. The council can delete the name of such persons from the register. However, an inquiry must be held before this is ordered.

Thus, the legal and practical controls over nursing in India are determined primarily by state legislation and regulation, in accordance with the provision in the Indian Constitution which delegates responsibility and authority in the field of health to the states. However, a number of central government laws and regulations as well as the code of ethics of the International Council of Nurses and rules of particular hospitals/institutions also affect nurses' rights and responsibilities in practice.

The primary purpose of regulating nursing practice is to provide protection to the people and also to the nurses. By regulating nursing education and practice, the welfare of society is given precedence over that of the individual nurse, or the nursing profession. However, the mere framing of laws alone is not enough. What is required is proper enforcement. So far, the present regulation is silent on the subject of nurses in independent practice.

Some of the factors which affect the proper implementation of nursing regulation are:

- *Inadequate infrastructure to enforce the Registration Act:* There are various provisions in the existing Registration Act to regulate nursing practice and education. Due to lack of adequate infrastructure and machinery, considerable difficulties are faced in enforcing these provisions
- *Lack of awareness among the public about licensing*

nurses: Public opinion about nursing is low as compared to other professions like medicine, engineering, etc. The layperson is not aware and does not consider licencing essential to the practice of nursing, which encourages unlicensed persons to practice

- *Lack of clear definitions:* Both the Indian Nursing Council and the state registration councils do not provide a clear definition of a nurse or nursing practice. Thus, it is not uncommon to find untrained, unqualified and unregistered persons working in private nursing homes and clinics
- *Poor control over nurses by nursing councils:* Though the nursing councils are autonomous statutory bodies, in reality they are still under the control of the medical profession. The Indian Nursing Council has very limited powers and a low status as compared to similar bodies like the Medical and Dental Councils of India
- *No provision for renewal of licences:* As the Nursing Regulation Act is more permissive in nature and not mandatory, it is difficult to prohibit unregistered persons from practising nursing. In most of the state Nursing Registration Acts, there is no provision for renewal of licences which makes it difficult to ascertain the number of persons actually engaged in nursing. This makes it difficult to differentiate between qualified nurses and unqualified persons

Role of National Nurses' Associations

The National Nurses' Associations (NNAs) should keep a constant watch on the enforcement of the existing Act and suggest measures for its proper enforcement.

- The NNAs should study the existing Act and administrative regulations in the light of changing national and international trends in nursing education, practice and health care. It should suggest modifications in the Act from time to time
- The NNAs should influence public opinion through legislators, various interest groups in the society and government officials with regard to implementation of proper nursing regulation. They should also inform the public through the media about problems in nursing and changes required for providing safe and satisfactory nursing services to the public
- They should keep the members informed about changes required in the Act and help them to understand the problems concerning nursing regulation that lie before them
- It is envisaged that both mandatory licencing and membership of the NNAs is essential. This would provide the necessary strength to the profession, control of nursing regulation in the country, and better services to the public

— by Narender Nagpal of the Trained Nurses' Association of India



field of health, in team spirit, conflict resolution and other communication skills that form an integral part of primary health care. A related problem is that of inadequate field experience, another necessary and crucial aspect of primary health care. Nursing schools have no separate budget for training as a result of which training materials, teaching aids and library facilities are limited. Even basic classroom facilities are poor.

When primary health care became the focus of our health care system, the success of the system at the grassroots came to depend on the motivation and ability of these workers and the quality of training imparted. Till today, nurses and ANMs are shackled to hospital-based care, and even those trained for community health lack confidence and prefer to work in hospitals where they are not confronted with the need to make independent decisions. Different categories of nursing staff have diverse requirements, a fact not considered by policy-planners. For instance, the extension workers connected with the national health programmes against malaria, smallpox, etc., were once unipurpose workers, who were later re-named multipurpose workers. This category included ANMs whose functions now became diverse. The sub-centres, PHCs, regional health and family welfare training centres and the central training institutes were responsible for the reorientation and training of

these workers. However, the curriculum was not revised and teaching methods remained the same. How could the scheme be successful?

Although the training of *dais* was undertaken as a recognition of their important role in the health sector, there is little reliable and systematic information available on the actual number of *dais* practising in India today. There are several pockets where there are no *dais* at all and a new cadre of *dais* for such areas needs to be created. The training programme itself has several lacunae. The current practice of existing *dais* and new entrants both undergoing the same residential course for a period of three months is inappropriate. Existing *dais* should undergo a shorter refresher course while the new entrants should undergo a longer course. This would ensure regular follow-up of their performance. The practice of giving as incentive Rs 3 for each delivery is not particularly desirable and should be discontinued. The scheme of providing *dais* with low-cost delivery kits should be encouraged and lapses resolved, particularly in the Bimaru and north-eastern states. *Dais* form an integral part of our health structure and more so of primary health care. However, during the Seventh Plan, only 28 per cent of the allocated budget of Rs 1,864 lakhs was spent in this area, and it is hoped that the Eighth Plan period will reveal better results.

The Indian Council of Nursing and ANM schools conducted a study of the curriculum, staffing and teaching patterns in the nursing profession.

- There were found to be only 1,000 tutors in India, 42 per cent of the required number. About 32 per cent of the schools had only one tutor, while others were probably using staff nurses as teachers
- 25 per cent of the schools had classes with over forty students
- 34 per cent of the schools taught for less than seventy hours, as against the required minimum of 270 hours
- 14 per cent of the schools had not been able to include all the subjects required by the curriculum which was prepared as far back as 1965

General nursing and ANM schools continue to concentrate on family planning rather than on the overall concept of primary health care. Long hours of work and the specialisation of medical care have disoriented them from the more pressing needs of the community. For instance, the time spent by nurses in the neurosurgery and cardiovascular surgery wards is wasted. Here they act as mere assistants and spend less time on preventive and promotive health. More than half the ANMs were found to have no domiciliary midwifery experience during training and only 17 per cent of general nurses had conducted deliveries at home. Without experience in home visiting, teaching and nursing, and without adequate experience in obstetric and paediatric care, as was found in more than 10 per cent of the schools, the ANM cannot be a good teacher or guide for the *dai* in the village. Thus, overall nursing education has failed to take into account the experience required to tackle all the problems associated with community health care. As a result, the quality of services is poor and nurses lack the time and confidence to be anything but impersonal caretakers of patients.

If nursing education is to improve, it is essential that we focus attention on the training schools, the teachers and facilities available. Much more time needs to be spent in the community itself, in order to motivate the health personnel to work under these conditions. This would not only ensure proper community participation and health care at the grassroots, but also enable the nurse/ANM to take independent decisions in the area of her work. Follow-up and refresher courses would go a long way in reducing the apathy so evident in the profession.

The nurse-bed ratio has changed little since 1954 and nursing education has not expanded as envisaged. Nurses still perform several tasks which cut into their

learning time, while learning itself continues to be primarily hospital-based. The job description of nurses needs to be clearly delineated, their working hours curtailed, their workload reduced, their pay scales and promotional avenues scrutinised, and occupational hazards examined in order that many more women might be encouraged to join the profession. Apart from this, the monopoly that doctors enjoy over the medical profession must give way. The preferential treatment given to doctors can only stand in the way of primary health care. But equally dangerous are certain practices in the nursing profession—a qualified nurse with a diploma in general nursing or a B.Sc. in nursing is not allowed to dispense medicines unless it is under the directions of a doctor. Yet, the CHW or ANM with much less experience can do so! Practices such as these also need to be looked into and the contradictions resolved.

The Trained Nurses Association of India submitted its recommendations to the Committee on Nursing and the Nursing Profession. They recommended that:

- The two levels of nursing education—diploma/B.Sc. and ANM courses—should have independent, defined and strictly adhered to rules for entry
- All schools of nursing attached to medical college hospitals should be upgraded in a phased manner
- All ANM and other schools of nursing should be attached to district hospitals and affiliated to senior secondary boards
- Central monetary assistance should be provided to all institutions of nursing education. All schools should have a separate budget for library and teaching equipment
- Nursing personnel should have some authority in selection of students. Selection should be competitive and based on aptitude tests
- All schools should have independent teaching blocks and adequate classroom facilities
- The living conditions for nurses must be improved
- Supervision in wards by tutors and clinical instructors must be strengthened
- The PHCs should serve as training centres for ANMs who must have adequate experience
- Continuing/refresher education programmes for teaching staff and for nurses/ANMs must be conducted periodically
- The INC's recommendations—particularly with regard to staffing patterns—should be respected

Unless urgent steps are taken to redress the problems in this profession, health for all by the year 2000 will remain a goal on paper alone.







Health Research

Introduction

Health is a milestone in the process of development. Since the majority of diseases affect the developing world, it is crucial that health research be seen as a vital factor in tackling the prevailing national health problems and concerns. By strengthening efforts in this area, individual countries can work effectively towards bettering the health status of their own people and contributing towards an international strategy for health promotion.

Health research strives not only to gain a deeper insight into health and to combat illness, but also leads people to apply already available solutions. It thus encourages a problem-solving attitude within a society, in order that problems can even be anticipated. Technologies that may seem sound in laboratory settings are tested for their feasibility in diverse conditions in the field. Based on sound information systems which cater to locale-specific situations, priorities are set right from the community level to those taking into account international concerns.

Health research must be interdisciplinary, for the health status of a population is a product of complex and diverse factors like culture, socio-economic status, geographic location and biological endowment.

Trained scientists alone cannot play a role in effective health research: a variety of people in diverse fields can, with the use of scientific methods, be valuable researchers and 'even an entire community can come together' to generate knowledge which would improve their health.

Although research alone is not the ultimate panacea for all health problems, it is essential today for those nations struggling with stringent budgets to improve their health status.

Sufficient investment is not being made by developing countries in building and sustaining their capacity for health research. While the areas of biomedical and clinical research are somewhat well developed, epidemiology, social science and management research are virtually neglected. Even international planning, 'tropical' diseases, diarrhoea, and, of late, AIDS and other sexually transmitted diseases, chronic degenerative diseases, disability, injuries and mental illness do not receive much emphasis, although they are major causes of death and debility. In such a context, growing concerns in the fields of occupational and environmental hazards or substance abuse are scarcely mentioned. Rich, traditional storehouses of knowledge which are

culturally relevant and provide immense potential for research, are often treated with disdain and if emphasised, are not guided by carefully considered policies.

Health information systems, health finance or information are areas that could guide health policy but as they do not constitute 'diseases', they are ignored in research.

For the large part, research activity in India is confined to the Indian Council of Medical Research (ICMR) and its network of institutions. Hardly any activity is carried out in teaching institutions, the private and voluntary sectors. Researchers are only tenuously linked with decision-makers, universities and industry, and due to these weak linkages, interdisciplinary and collaborative research amongst different institutions is negligible.

While the ICMR has been involved in pioneering efforts, such as the National Sample Survey of Tuberculosis and evaluation studies of various national health programmes, these research inputs have not formed the basis for health programmes which have recently been developed, and are in fact no better than the previous ones. Yet, large sums of money continue to be pumped into the creation of this infrastructure by erecting large physical structures and importing massive and often unnecessary equipment.



Some of the reasons commonly cited for the dearth of meaningful research relate to the lack of availability of properly trained research workers, random selection and prioritisation of research findings, and a lack of indigenous reliance in essential research.

Critique

Today, half a century after Independence, India has not been able to implement Sir Joseph Bhore's recommendations satisfactorily. Although the Shrivastav Committee too charted out a detailed programme calling for considerable research in the field of health manpower development, little progress has been made. In 1981, the ICSSR-ICMR Study Group spelled out an alternative strategy for health systems research. Despite the proliferation of research projects since, efforts incorporating the basic recommended methodology are piecemeal and scattered. The National Health Policy of 1982 is yet another milestone in our efforts to intellectualise the gaps in our strategy to achieve health for all.

For the large part, health research in India has focused on a highly medicalised disease-oriented approach. Most of India's methods of the control of major diseases have been adopted from the West, and although there is now a large body of knowledge and simple, effective and low-cost technology to deal with these diseases, they continue to be rampant in the country. Although the internationally acclaimed tuberculosis control programmes and oral rehydration therapy were developed in India, there has been little impact in these specific areas. Although tetanus toxoid has been in existence for several decades, tetanus continues to be the second largest cause of death in India. China has successfully reduced the incidence of leprosy by one-fifth, using only a single drug, while the problem has almost doubled in India since Independence, despite multi-drug therapy, research and access to foreign aid and technology. Our chief constraints are in the social, educational, cultural, economic and political spheres; ironically, those areas which are largely ignored in health research. Warped priorities are to a great extent also due to the lack of understanding and the alienation of policy-makers from the majority of the populace.

A complete re-thinking is required in the area of health research as is a systematic analysis of health priorities and problems: which communities are most vulnerable to a given health problem; how do they perceive their health in terms of needs and available services; is this in keeping with the health systems evaluation and, if not, what are the lacunae. These are some of the issues that must be addressed urgently. We should also assess what already exists by way of knowledge or technology for necessary interventions, what might be the costs and consequences of our actions, and, in the process, we need to decide whether or not research is required. The results

of research must influence policy and decision-making.

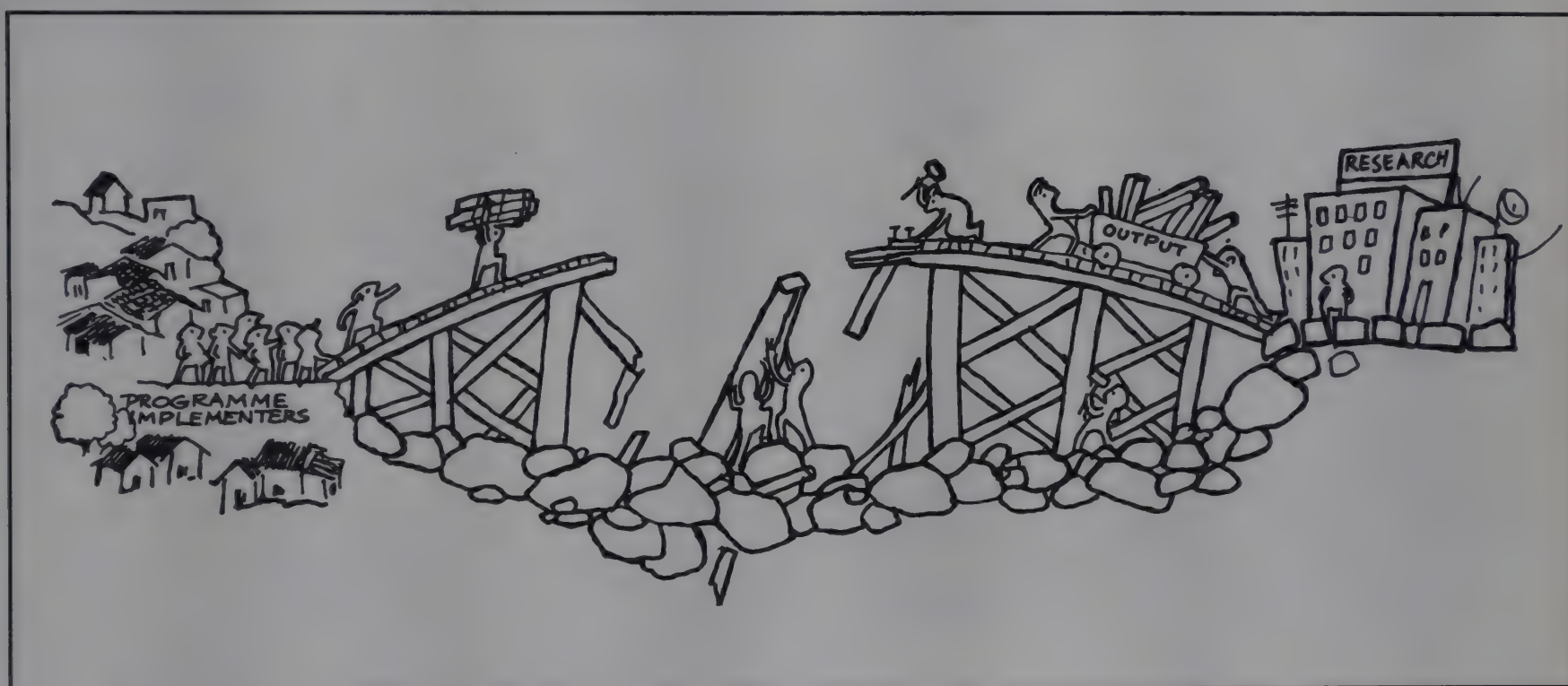
Proper dissemination of sound epidemiological data can help arouse the consciousness of politicians, bureaucracy and others. Buried research findings are of minimal value; it is necessary to make these publicly known to those whose health they concern. Emphasis must be placed on tackling problems that affect the majority rather than the minority, and we must look for low-cost solutions.

Enlarging India's scientific base with regard to the promotion of health and prevention of disease is essential. Action-based research is imperative—demonstration projects with clear objectives, sound methodology, monitoring and evaluation need to be undertaken so that where successful these examples can be replicated with necessary modifications to benefit larger numbers of people. Problem-oriented research will more readily meet the urgent needs of our people.

Basic research has great potential if the overall goals of our national health priorities are kept in mind. However, duplication of original work done elsewhere which has no relevance to the Indian context must be guarded against.

The distance between researchers and programme implementors needs to be bridged. Greater interaction with common goals is called for so that the results of research can be implemented in the field in a timely fashion. Researchers need to be sensitive to actual field situations so as to make their research relevant to the existing reality.

Future efforts should culminate in a collaboration between developing countries. Effective networks need to be established amongst the countries of the South, so as to share relevant experiences and exchange ideas, thereby lending depth to the concept of technical cooperation.



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Health Technology

Today, India is at the threshold of an era of 'spare-parts' replacement. Human functions are being simulated with prosthetic and other mechanisms such as dialysis machines, iron lungs, ventricular bypass functions and artificial limbs that respond through a fusion of nervous and electronic energy sources. Electrodes are being implanted in the inner ear in an attempt to overcome deafness, and brain pacemakers, apart from controlling epileptic seizures, are being implanted to contain other forms of spasticity and tremors associated with cerebral palsy or the after-effects of a stroke.

Such technology appears to have an impetus of its own. Because changes have often been sweeping, they also tend to be self-reinforcing. However, it is time that we assess the implications of our technological choices on health care services and desist from finding excuses. For, despite the revolutionary discoveries over the last forty years in the areas of immunisation, diagnostics, surgical techniques and pharmaceuticals, the antibiotic

era has not witnessed the formulation of an effective delivery system. In fact, the Indian government's statement on the National Health Policy (Government of India 1983) admitted that 'in spite of such impressive progress, the demographic and health picture of the country still constitutes a cause for serious and urgent concern.'

We have marked the bewildering rapidity with which medical technology has evolved, improving upon existing and creating new diagnostic tools which sometimes complement and often compete with each other. New technologies in the field of radiology, for instance, have been making rapid strides and India has acquired expensive equipment such as scanners and nuclear gamma cameras. Much of the newer equipment comprises older technology that has been given a 'face-lift' with colourful display panels and printouts. Health care providers are being enticed to use disposables on the grounds that these are safer and cheaper than reusable

equipment, although this has not yet been proved. Since packaged disposables are easy to count, they may contribute to cost recovery but do not necessarily lead to cost reduction. Of course, the impact of disposables on our natural resources and environment is never discussed.

According to available information, the production of medical electronics in India grew from Rs 2.5 crores in 1972 to Rs 30.5 crores in 1986 in absolute terms—thereby representing a compound growth rate of 16.5 per cent. The major area of production related to X-ray equipment which contributed over half the total value of production. Opinions vary on the size of the medical electronics industry, ranging from Rs 120 crores to Rs 200 crores with anywhere between 50 to 70 per cent imported from abroad. While import figures for medical equipment more than tripled between 1980 and 1987 (from Rs 20 crores to Rs 65 crores), the rate is increasing by nearly 20 per cent per annum. Most of the apparatus which is imported is owned by private hospitals.

The increasing import of high technology medical equipment is essentially a result of the liberalisation of import procedures by the government. Import duties on medical equipment have been reduced from 107 per cent to a mere 40 per cent. Hospitals and diagnostic centres which treat 40 per cent of their patients free of charge are totally exempt from duty. Non-resident Indian investors are also exempt if 25 per cent of the patients are given free treatment. The centre's ill-balanced policy pertaining to the import of life-saving equipment has played havoc with the indigenous industry. While medical and surgical life-saving equipment can also be imported without duty, components and raw materials fit into the highest duty bracket. On the market, therefore, it is impossible for life-saving equipment manufactured or assembled from imported components and raw materials to compete with the furnished product. Domestic industry has been crippled by this policy and many units are on the verge of closure.

To hasten the import of machinery, leasing companies have mushroomed to loan money exclusively for the procurement of medical equipment. Manufacturers and suppliers have also stepped in, trying to lure clients with attractive offers such as deferred pay-back schemes. It is evident that the business world has been quick to see the commercial viability of health care and to emerge rapidly as the health 'industry'. This trend is becoming increasingly evident in India with big business houses joining the bandwagon to cure sickness. With the Chhabrias proposing to build a corporate hospital in West Bengal, Apollo Hospitals launching a Rs 14 crore hospital project in Assam, and the Peerless General Finance and Investment Company's ambitious plan to establish a nationwide chain of hospitals, business groups and doctor-entrepreneurs are penetrating semi-urban and even rural areas with their high tech wares.

Box 1

TECHNOLOGY POLICY

There is no distinct government policy relating to health equipment. The import and export of health equipment has hitherto been governed by the industrial policy and reflects similar economic and profit-oriented concerns. While there should be a distinct sensitivity to the well-being of the people it proposes to service, the state regulations make it a mechanical exercise. Irrespective of the human-induced misuse of a technology for controlling the health system for monetary gains, the scope of technologies in treating various diseases of differing seriousness cannot be denied. However, pressures are many, especially from the manufacturers and importers of the equipment.

According to the Government of India rules, there is a customs duty of 40 per cent on imported equipment and 25 per cent on the components that are imported. As a result, monopolies which thrive on assembling technology have emerged. They are unable to offer spare-parts and efficient after-sales services. In such a situation, companies which manufacture the equipment locally suffer as they cannot compete with those who claim to be manufacturers. It is interesting to note that while the government exempts life-saving equipment from customs or countervailing duties, the same is not applied to spares.

Other hospital equipment which is not of a life-saving nature, when imported by government and local bodies, societies, trusts, etc., does not attract levies. Most of this hospital equipment is manufactured indigenously, but has problems competing with the imported material which is on the Open General Licence list.

The import and production of medical equipment has to be looked at in two ways—sophisticated equipment which has a specialised demand and the not-so-sophisticated which is needed in greater numbers. Where the former is concerned it may not be worthwhile to produce it in India because the demand is not so great and the technology is expensive. However, equipment which is needed by the country in large numbers must be produced locally.

Trends in national development are also reflected in the manner in which health services have evolved. Capital-intensive hospitals using expensive and complex technology have been given much more importance than more basic health care relevant to the masses. Further, hospital-based curative services have led to a monopoly of knowledge by specialists and elitist attitudes inimical to people's participation and responsibility with regard to their health care.

Super-specialisation has caused a fragmentation of services whereby most physicians lack the skills or the interest to treat the person as a whole rather than the particular area of affliction. Further, specialisation encourages a clinical view of the medical services, authoritarianism, impersonality and the dominance of technology. Access to medical services is naturally affected. The specialist requires hospital-based facilities and colleagues. Thus, the tendency is for physicians to cluster around major metropolitan areas where both facilities and specialists are clustered.

Box 2

EXPLOITATION IN HEALTH POLICY

Economic concerns that dominate our planning and administrative processes have permeated the realms of health. Conforming to the iniquitous social structure and planning priorities, there has been a greater advancement of the technological status of health centres and medical clinics in urban areas in both governmental and non-governmental sectors and a stagnation in the rural primary health centres.

The absence of a well-defined health policy has resulted in a profit-motivated health care system which is coming to rely heavily on the hardware aspect—the mystical, diagnostic, therapeutic and remedial technology. CAT scan, ultrasound, echo, etc., have become routine in medical jargon. Similar to the doctor-drug nexus, where the patient is brainwashed into believing the effectiveness of the treatment on the basis of the potency of the drug, there appears to be a growing connection between practitioners and diagnostic centres. Unnecessary investigations and surgery have become commonplace in the context of economic motivation of medicare in the country.

McKeown in his book *The Role of Medicine* distinguishes five groups of measures while assessing the impact of science and technology on health status:

- (i) Measures which are scientific but owe little to professional science—manuring of land by farmers and limitation of family size by parents
- (ii) Measures leading to environmental improvements derived from observations on the relation between living conditions and health
- (iii) Non-medical science and technology—chemical fertilisers, insecticides, herbicides in agriculture and engineering technology which contribute to control of the environment
- (iv) Biomedical research which extended non-personal measures like food and water hygiene
- (v) Biomedical research which resulted in immunisation and treatment

He concludes that at least in the West items (iv) and (v) have had less contribution to change in health status while (i) and (iii) have had more impact.

Instead of being a panacea to the ailments, this practitioner-diagnostic lab nexus threatens to affect the social fibre of the country. One frightening instance is the amniocentesis test, which instead of detecting genetic disorders is increasingly being used to determine the gender of the foetus and if it happens to be female, abortion is the logical consequence. There are several loopholes which offer the practitioners an escape route with the bounties.

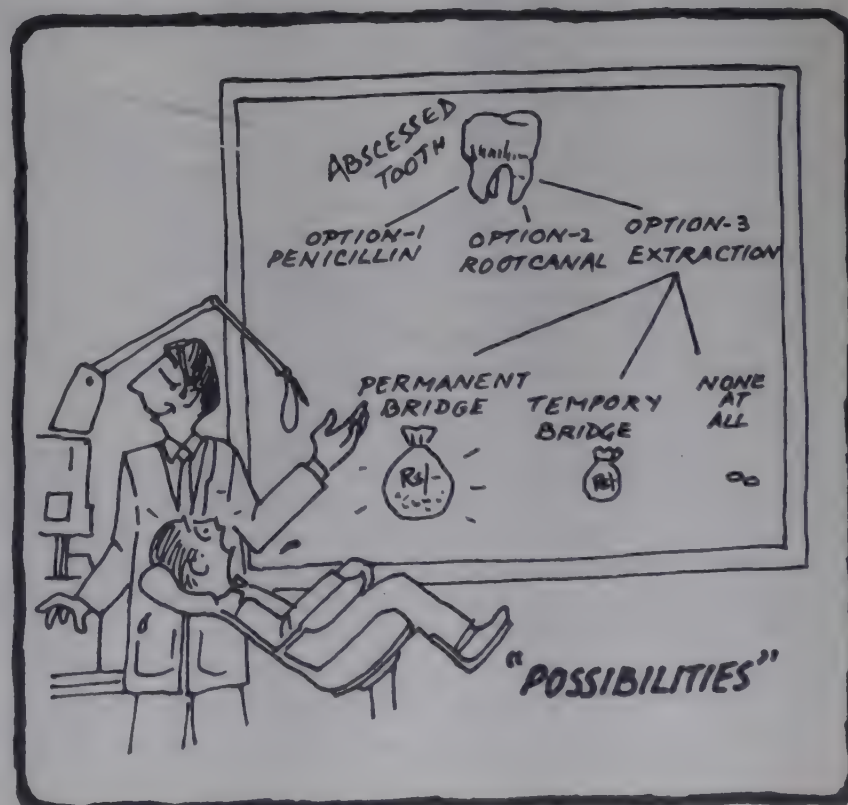
There is a need to critically scrutinise the technological dimension of medical/health technology, particularly diagnostic technology, surgery and related aspects, as they form a major part of the cost of medical care. Also to be questioned is the mechanistic approach vis-a-vis the holistic health perspective.

physician needs access to a vast array of treatment and testing procedures, to laboratory facilities, or a hospital. Although the prospect of abandoning solo practice is disagreeable or even frightening to many individualists, medical technology has no simple alternative to offer. Hence, while solo practice remains a dominant form of providing care, it is being steadily abandoned. It appears that we have traded the traditional caring function of the family physician for a dehumanised technology delivered at the convenience of the health care provider.

The medical superstructure, as it is emerging today, has to be supported by an increasing number of para-professional workers. Roughly, three-quarters of the non-surgical physician's care is supportive and there is a sharp delineation between technologies for prevention, control and cure of diseases, on the one hand, and those for palliation and repair, on the other. While technologies for the former can be simple and inexpensive, those for the latter, such as open heart surgery, are exorbitant and often of only marginal benefit to the patient.

The role of the physician in influencing the treatment process cannot be stressed enough. Apart from determining the demand for medical care, it is he who suggests hospitalisation, prescribes drugs, orders tests and X-ray examinations or calls in consultants. Thus, in addition to being a supplier of medical care, he is also the consumer's chief advisor on how much medical care to purchase.

The endless possibilities regarding treatment procedures can sometimes be frightening. Typically, a dentist has several options while dealing with an abscessed tooth: restoration with penicillin injections, root-canal, or a simple extraction. If he opts for extraction, he can propose a temporary bridge, a permanent bridge or none at all, and his decision undoubtedly reflects his judgement of the patient's ability to pay and his 'taste' for restorative work.



Perhaps the most obvious consequence of specialisation is the decline of solo practice. No longer do physicians make house-calls with all their technology available to them in their 'black bag'. Today, the

STRONG MEDICINES

Make the mistake of consulting a private medical practitioner about a minor ailment and one is pushed through the entire gamut of medical tests. You go through the process with bated breath, in dread of unearthing some deadly disease, only to have all the tests throw up a 'negative'. Vast, unadulterated relief. Who cares about all the unnecessary expenditure, those taxing moments, as long as you are safe and healthy? Unnecessary they had been, for your doctor was aware all along that you suffered from none of the diseases for which he made you undergo tests.

It is not always that one realises one has fallen prey to the well-entrenched system of cuts and commissions that governs the medical profession today. Confides a doctor who runs a nursing home in south Delhi: 'In the capital itself the rate is fixed between 20 and 25 per cent, with minor variations, depending on the area and the doctor concerned.' Each doctor who refers a patient to a specialist or a laboratory gets a 20 to 25 per cent cut on the fees accruing to the referred consultant. The cut operates on consultation fees and all surgical and other procedures that the doctor might undertake. Thus, on a Rs 400 fee for an abortion, Rs 100 go to the doctor who referred the case, and on a Rs 2,000 fee for a delivery, the 'agent' pockets Rs 500. Insiders confirm that the system has been functional for almost twenty years and there are few doctors who are not party to it.

It certainly helps them make money. For with an estimated 2,000 allopathic doctors practising in Delhi (according to the Medical Council of India's calculations), a daily pay-off turnover of Rs 100 means a commission packet of Rs 2 lakhs a day and over Rs 7 crores a year!

Many have been the victims or near-victims of this sordid practice. Where monetary spoils gain precedence over the patient's health, the latter is bound to suffer. Take 8-year old Vicky who was taken to a succession of doctors, each of whom referred him for innumerable tests for a fever they failed to diagnose. The poor child nearly died in the process. As a result of indiscreetly administered drugs, powerful antibiotics and injections, Vicky began to actually feel ill and lost his appetite. Fortunately, his parents finally consulted a reputed paediatrician who stopped all unnecessary medication, affirming that a body temperature ranging from 99 to 100 degrees was normal for some people in summer.

Rarely can one find a true physician nowadays—one who diagnoses an illness by a mere physical examination and then recommends a test only to confirm the diagnosis. Gone also is the breed of doctors who tried to appease a patient's fears. As Dr O.P. Kapoor, retired Chief Medical Officer, Bhiwani, says, 'The trend now is to make a mountain out of a molehill so that the patient keeps scampering up and down to the doctor.' Dr Kapoor continues, 'Tests are used to confirm a diagnosis, not lead you to one. If I say I will undertake a blood test and an X-ray to determine whether a patient is suffering from tuberculosis, I am a slave of the laboratory.'

In many cases patients are advised to undergo tests totally unrelated to the symptoms they complain of. In one such case, an old man suffering from a persistent cough was made to undergo an ultrasound of the prostate although he had no symptoms of this problem. The ultrasound merely confirmed this. Another patient complaining of uneasiness and dizziness was sent for a CAT scan, suggesting that a head injury suffered the previous year might be the cause. However, another more

conscientious doctor, ruled this out, diagnosing wind as the cause!

When it comes to medicating the sick too, irrespective of the fact that each illness has its specific medication, doctors prescribe an entire range of medicines in the hope that at least one will hit the target. Such arbitrariness is usually the result of lack of proper diagnosis as well as an attempt on the doctor's part to impress the patient with his knowledge. One child with a sore throat was prescribed Cephalaxin syrup, Flamar suspension, Avil syrup, Crocin syrup, Phenargan syrup, Chloromycetin ear drops and Alfapsin tablets! All the child actually needed, according to Dr Kapoor, was one medicine for the throat (Cephalaxin) and Crocin when required.

Instead of limiting the use of medicines and beginning with the mildest ones, doctors opt immediately for the strongest antibiotics for swifter action. Says a reputed doctor, 'Such strong antibiotics not only kill the friendly germs that make B-complex, but also make a person's system resistant to the milder medicines. They are also more expensive. Innocuous but unnecessary vitamins are also often prescribed to win the patient's goodwill.' Doctors undoubtedly bank on the fact that today's patient is more aware of the necessity of immediate diagnosis and treatment of even the mildest ailments for fear of having contracted a serious disease. As a result, those with the means are ready to spend heavily on medical attention.

An alternative for those who cannot afford to pamper themselves are government hospitals which are overcrowded and not so clean but yet kinder to the patient as the minimum medication and tests are prescribed. The doctors do not have to impress anyone; they are not in the race with others, though there are reports of a few recommending patients for tests outside the hospital for their 'cut'.

However, the exercise in patience that a visit to a government hospital entails makes them out-of-bounds for many. Thus, a sick person today is caught in a dilemma—on the one hand lie exploitative private practitioners and on the other, ineffectual hospital services.

Though the Medical Council of India is equipped to suspend or debar from practice any doctor in the country on grounds of professional misconduct, in effect, no doctor has yet been debarred. Despite the fact that doctors continue to make a mockery of the Hippocratic Oath taken by them for nearly 2,000 years, the MCI remains a paper tiger. A disciplinary and ethical committee to monitor unethical practices among doctors is proposed to be set up as part of the MCI, but the bill is yet to be taken up in Parliament.

Meanwhile, other alternatives must be sought to protect patients from uncaring and mercenary doctors. If government hospitals all over the country could be better staffed and equipped, and their services in terms of time and attention devoted to patients matched with those of private hospitals and clinics, malpractices in the latter could be curtailed.

Another suggestion to control the competition which leads to the practice of commissions and cuts comes from a doctor who cites the example of England where the general practitioners' practices are regulated on the basis of the population they cover, to avoid a mismatch in the doctor-population ratio.

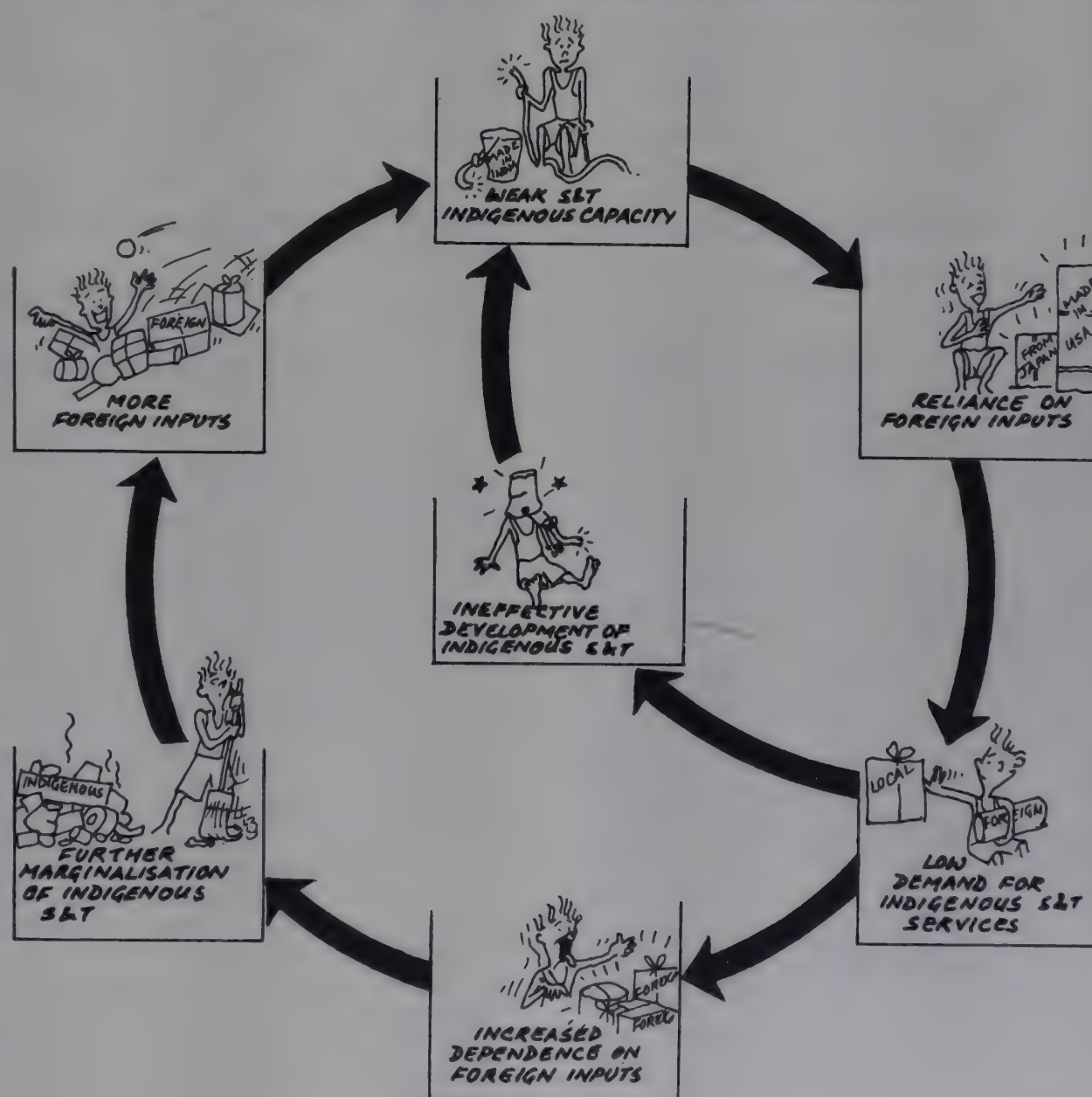
Source: Sadhna Mohan, *Times of India*, 16 February 1991.

In the face of rapidly rising medical costs (12 per cent a year) outstripping the national inflation rate and income growth, the future looks rather bleak for India's sick and infirm millions. With the stress on imported equipment, factors such as climatic suitability, paucity of maintenance and repair infrastructure, difficulties in obtaining spare-parts, expertise for the use of such technologies and the risk of dependence on a new foreign technique, further complicate the problem of cost containment. In a recent study conducted in the Jalgaon district of Maharashtra by Duggal and Amin, it was found that the amount spent by people on treating their ailments is three and a half times more than what the government and municipal bodies spend. With the private sector gaining dominance, underprivileged sections of society are being deprived of essential health care which should really not depend on the individual's purchasing power. It is a national responsibility to provide health care that is at least within the means of the individual.

The prevailing philosophy of the national development programmes too does not inspire hope. Rather than encouraging genuine reforms and new approaches in health care, it merely serves to widen the gaps in the health delivery system. By emphasising physical investment, especially in urban areas where capital, technical and managerial skills, along with power and electricity, are readily available, some parts of the country obtain a disproportionate share of what is available while others lack even the most essential technical solutions. Due to the high costs of sophisticated equipment, a substantial share of limited resources is absorbed by a minority of the population.

Today, there are 33,775 government-owned hospitals, dispensaries and primary health centres in India. On average, this amounts to one government health unit in every 97 sq km. However, most of the government's health care institutions are concentrated in cities and towns. Of the 4,215 government hospitals in the country, only 822 are in the villages. Thus, 81 per cent of the

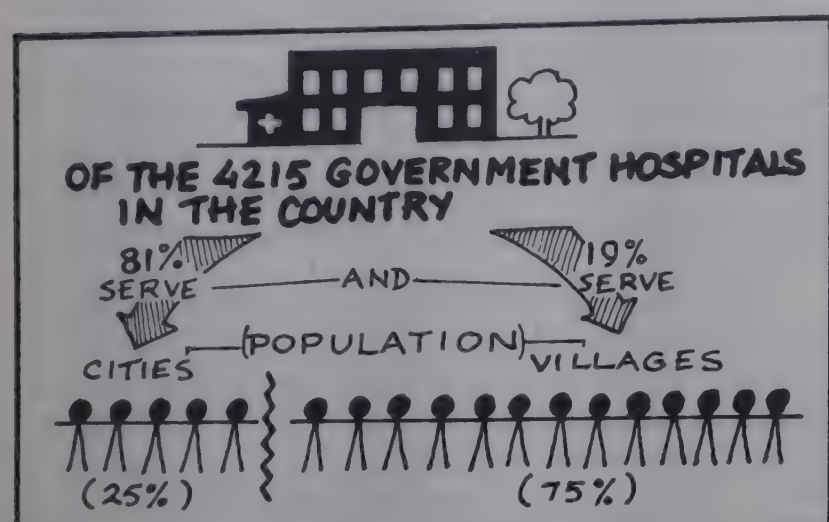
THE "VICIOUS CIRCLE" OF TECHNOLOGICAL DEPENDENCE



Adapted from "The Structure and functioning of technological systems in developing countries (ID/WG.301/2) P. 43.

Note : S&T = Science and Technology

government facilities serve only 25 per cent of the population. Further, in rural areas, there is only one government health facility for every 25,000 population, or one in every 140 sq km.



Perhaps the greatest disparities in health care are related to the provision of preventive services. Although it is often tempting to attribute underutilisation of preventive services to the 'ignorance' of the masses, studies reveal that this is more due to underprovision of the social, financial and psychological costs of attendance and the alienation created by the insensitivity of an elitist health system. While it may be true to some extent that people are often not informed about available health services or are not clearly aware of the types of health measures offered or the reasons for them, factors such as the attitudes of health personnel, disregard for traditional systems, physical and social inaccessibility and poor transport are frequently responsible for the 'bypassing' phenomenon. If people lack confidence in the local health institutions they might ignore them, preferring to go to urban hospitals or traditional practitioners when ill.

It is time that policy-makers established new guidelines for health and development based on the felt needs of the people. The availability and allocation of resources would naturally be central to the implementation of any national programme. This is where technological aspects would intertwine with political realities. It is by no means easy to correct past mistakes resulting from misconceived policies of development and industrialisation. There are some basic questions that need to be faced squarely while allocating health resources: what measures do we have to identify the effectiveness of various treatment procedures? Is there some risk that we may be exaggerating the benefits of medical intervention or 'over-treating' patients? Are we making excessive use of surgery? And to what extent are we rationalising technologies in order to reduce costs? This brings us to the important question of appropriate technology, a concept that is gaining momentum despite attempts by some to dismiss this as 'bamboo technology'.

Appropriate Technology for Health

Appropriate technology for health is defined by the WHO as 'technology that is scientifically sound, adaptable to local needs and acceptable to those who apply it and those for whom it is used, and that can be maintained by the people in keeping with the principle of self-reliance with the resources the community and the country can afford.' In other words, appropriate technology for primary health must not only be feasible economically, but must be culturally acceptable and environmentally sound. It should not be rigid but should have the capacity to evolve, consciously adapt to emerging needs and contribute towards socio-economic development.

Appropriate technology (AT) does not imply cheap or sub-standard technology. Nor can it be used as a fashionable label to sell low-cost devices to developing countries. While it calls for a choice of the best locally-available produce, regardless of whether it originates from the indigenous culture or from the latest high technology, it should fit into the hands, minds and lives of the people who are to utilise it.

In a country as vast, diverse and poor as India, it is imperative to not only use all resources and technologies available in a sustainable manner, but also to create new innovative alternatives.

Box 4

THE SOLOMON ISLANDS

Since 90 per cent of the natives live in the villages, rural-based appropriate technology is a living concern for the people of the Solomon Islands. In order to improve the health status of its population through primary health care, the environmental health division of the government has been experimenting with sustainable technologies that are sensitive to the existing monetary, material, technical and human resource constraints. At every stage of the project—from research work to field trial and implementation—the involvement of both politicians and users was actively sought.

To combat rampant gastrointestinal infections in the community, a chlorinator using coconut shells was constructed which disinfected hand-dug wells on a fortnightly basis. Since ordinarily such a by-product is wasted, the cost involved in the enterprise is negligible. Although the effective life of the chlorinator depends on the amount of water drawn, it lasts for two or three weeks on average, thereby substituting daily applications of disinfectant with a one-time fortnightly dose.

A solar water heater with a capacity of 200 litres was also built as part of the project. Using timber and coconut husk for insulation, and certain basic construction materials such as corrugated iron sheets, galvanised iron pipes and an oil drum, the cost of the heater was estimated at US \$ 55, one-eighth the cost in the local market. Such heaters could be used in a variety of ways as they could provide hot water to clinics, health centres and even entire hospitals.

The concept of appropriate technology for health (ATH) is gradually catching the imagination of planners and implementors. This concept is already responsible for the implementation of thousands of projects all over the world, and success in this has been amply demonstrated in developmental fields such as water harvesting and sanitation. Initiated by government groups and individuals, the technologies used cover a wide field ranging from the efficacious use of solar, wind and hydro power to developing better techniques in areas such as sanitation or food preservation. ATH is a need-based technology and the participation of the people in the formulation of their needs and in finding solutions is actively sought. The accent on people's participation is reflected in the concepts that are related to the ATH approach, namely, self-development, self-efficiency and self-reliance.

Within the health sector as well there is a growing realisation that the present high technology, urban-based delivery systems do not cater to the majority of the population in the Third World. In addition, ill-health cannot be regarded merely in terms of pathogenic agents of disease, but needs to be viewed in the context of factors such as those relating to the environment, housing or literacy. Thus, a trend is emerging whereby

Box 5

MOTHER'S CARDS

'Mother's cards' have been successfully used in certain parts of India and Somalia for over ten years. These cards are utilised by primary health workers to record the continuing obstetric status of women in the reproductive age.

In the Kasa Model Integrated Mother-Child Health and Nutrition Project in Maharashtra, a trained team consisting of twenty-seven part-time social workers with four to ten years of schooling filled in over 5,000 cards per month, covering 88 per cent of the eligible women in the fifty villages identified under the project.

These handy and durable information packages, costing only US \$ 0.15 (about Rs 2) each, consist of a thick card with a plastic bag for protection. For at least ten years, details of four pregnancies can be recorded in the local language. A duplicate copy printed on thinner paper is retained by the health worker. Information on the card pertains to the mother's contraceptive habits, menstrual status, risk factors, nutritional status before and after pregnancy, tetanus immunisation, breast-feeding, pregnancy period and the expected date of confinement.

alternate approaches involving primary health care are being experimented with in many places. In view of the often limited educational background of primary health

Box 6

THE POLITICS OF APPROPRIATE TECHNOLOGY: ORAL REHYDRATION THERAPY

The effect of diarrhoea on child mortality is well-known, with an estimated five million deaths attributed to it annually. However, as a result of the research efforts of a team of scientists from India and Bangladesh—culminating in the formulation of oral rehydration salts (ORS)—the toll in mortality is being lowered in the Third World.

Based on the knowledge that glucose stimulates the absorption of salt and water in the small intestine, the ORS solution replaces all the salts and fluid lost during diarrhoea.

These salts are being packaged and made available to the rural population by companies under contract to various international organisations such as the WHO and UNICEF. While scientists strive towards making more stable formulations using trisodium citrate instead of sodium bicarbonate, the ORS solution can easily be made at home with salt, sugar and drinking water. It can also be made with locally available ingredients such as rice water, soup or mild herbal teas. Under the guise of 'appropriate technology', various gadgets such as double-ended spoons and complicated bottle-top measures have been developed to measure the required amounts of salt and sugar. In view of the simple hand measures that can be taught to the people, the fact that these devices may not always be available and when procured may not have adequate information regarding their use, the necessity of such gadgets has been questioned. In Jamkhed, for instance, minimally trained village health workers measure sugar with their hands and use a two-finger pinch approximation for salt.

The active promotion of pre-packaged solutions has also been severely criticised. Apart from the problems of availability, the use of packets creates an uncalled-for dependency, thereby mystifying and institutionalising the treatment of a common health problem. Thus, the people have

no control over their health and are made to seek small life-saving handouts.



The preparation of the ORS solution at home, on the other hand, has a very different impact on the people. With an initial educational input, such home remedies can serve to demystify and liberate the poor and, in the bargain, build self-confidence with regard to their own ability to solve their health problems.

workers and the diverse tasks that they have to perform, simplified aids and other appropriate technological devices can be invaluable in meeting the health needs of the people they serve.

It is not difficult to identify areas in which the need for ATH is most urgent. With communicable diseases being the cause of the majority of deaths in the Third World and contaminated water and malnutrition being the most significant factors in the perpetuation of ill-health, it is clear that we need to find effective solutions to grapple with these problems.

Although adequate and low-cost vaccines against many communicable diseases are available, such vaccines often remain unused because of the non-existence of appropriate equipment to transport, store and administer them. Apart from import costs, the vaccines are often impotent as they are not suited to the climatic conditions of tropical countries. While considerable research effort needs to go into the development of indigenous vaccines with technology being diverted to production laboratories for this purpose, we also need to find novel methods for the control of intermediate environmental safeguards.

Similar problems pertaining to high costs plague the pharmaceutical companies where patent-rights applied to brand names held by foreign firms constrain low-cost availability. Priority is not given to channelling resources towards technology and equipment for the production and safety tests of medicines.

While some maintain that diseases such as cancer, metabolic afflictions, cardiovascular and mental disorders

are diseases of the rich and need to be given lower priority in health programmes in the Third World due to the higher cost of treatment and the more pressing problems of malnutrition and communicable infections, the fact remains that these diseases exact an enormous toll in terms of human suffering and costs to the economy. Research and development in the medical profession needs to be geared towards developing low-cost diagnostic, therapeutic and preventive measures for combating the proliferation of these non-communicable diseases.

Conclusion

Used correctly, technology has the ability to improve the lot of every person on our planet. However, we have to proceed with caution and with a holistic perspective, for what might seem like a giant step forward could prove disastrous in the long run. Medical technology is not an isolated phenomenon; and we must realise this if we are not to be crippled in our attempts to use the advances in knowledge to our advantage.

Thus, profound choices need to be made to reduce the gap between the affluent and the starving. Apart from other sectors cooperating in this endeavour, the medical education imparted should create a sensitivity amongst health professionals towards auxiliary and village-level workers. Objectives need to be redefined in the light of a system that has clearly failed and a national dialogue needs to be initiated so as empower our people to take difficult decisions regarding health care.

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Financing Health Care

India reports an average per capita annual income of about Rs 6,200 per year (US \$ 350), placing it in the middle range of low-income countries as ranked by the World Bank. For a country with this level of income, *India spends a relatively significant amount on health care and gets a poor return in terms of health improvement.* The health financing scenario in India is one of *too much money being used for the wrong things*, sometimes with even negative effects on health, and *not enough money being available for those things that could have a positive effect on the major health problems.* Even the funds available for those 'right things' are not utilised to the optimum.

Unfortunately, complete and accurate data on national health spending is not available for India. The figures that are available suggest that on average roughly Rs 130 to 260 per capita is spent on health care, including both government and private expenditure. This level of spending corresponds to approximately 3 to 7 per cent of the total national income. When India's health spending is compared with other low-income countries such as Indonesia, Pakistan and China, it is found to be fairly high in relation to the low level of income. These latter countries spend about 1 to 3 per cent of their income on health.

The Indian Constitution stops short of guaranteeing health as a fundamental right. It does, however, instruct that the state has a duty to act to improve health and should take steps to carry out that responsibility. As a result, the state has, since Independence, maintained a high profile in setting priorities. Health is a distinct area in centre and state development planning and in 1982 a National Health Policy was promulgated, giving high priority to the public health needs of women and children.

Despite this emphasis on state action, the government does not pay for most health care in India and is probably not the principal force affecting the structure and impact of the health system. While estimates vary, the government probably accounts for no more than 20 to 40 per cent of total health spending. Apart from being a rapidly expanding component of India's health scenario, the private sector makes up the majority of health expenditure. The private health sector includes the services provided by private institutions and corporations, services purchased by individuals and families, and even the activities of voluntary organisations in health.

Government Financing of Health Care in India

Government funding of health care includes many different types of activities, such as the public sector health service system, insurance schemes for low-salaried corporate workers and central government employees, and health services for employees of certain state-owned enterprises and the military. The activity most visible to the general public is the system of publicly financed and operated health services.

At the time of Independence, the Bhore Committee had proposed a comprehensive public sector health programme, with the state guaranteeing that no one should be denied needed care for want of the ability to pay. This programme would have been fairly costly, perhaps bringing Indian health expenditure up to the then Western level of 5 to 6 per cent of income.

However, from the First Five-Year Plan, spending never came anywhere close to that level. From an initial level of about 3.3 per cent of plan allocations, health spending fell during subsequent plan periods. The Sixth and Seventh Plans, however, once again saw a significant increase, so that plan health spending is now a slightly higher proportion of the total plan than it was in the 1950s (although still well below the recommendations of the Bhore Committee) and it is accompanied by an equally high allocation to provision of clean water supply. Health accounted for about 3.5 per cent of plan spending in the Seventh Plan and the same amount was available for water and sanitation. Nutrition programmes, mainly ICDS have also been expanding steadily to the point where they now cover about half of all development blocks.

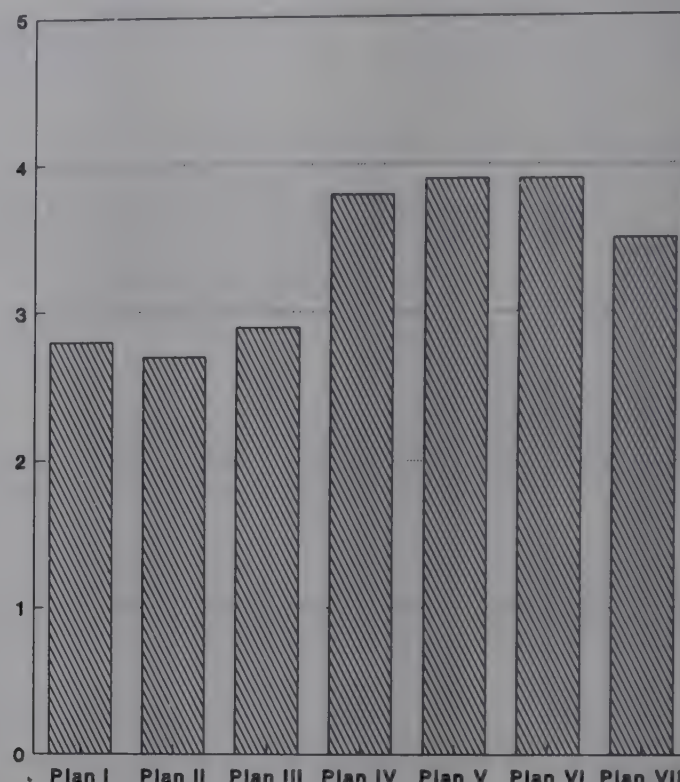
Most of government health spending is done by the states and indeed, health is a 'state subject'. State-level spending and most of local government spending, especially non-plan spending, supports the large, primarily curative infrastructure of clinics and secondary and tertiary hospitals that has been created by the centrally-planned public investment programme, augmented by local initiatives. When government health spending in the states is compared with state-level data on such indicators as infant mortality or malnutrition, major disparities emerge between needs and resources. Those states in India which ranked lowest in terms of infant mortality rates in recent years also ranked the lowest in terms of government health expenditure. Thus, despite laudable goals of improving basic health statistics, there is room for improvement in translating objectives into resources for the states most in need. The central government continues to invest in the development of new facilities and the posting of new staff, but the main emphasis is now on the smaller peripheral units and personnel, such as sub-centres. In addition, central finances, wholly or jointly with the states, are geared towards a range of schemes to provide such specific services as family planning, immunisation and malaria control. Box 1 presents some recent data on levels and trends in state health financing.

There has been very little careful analysis of where the government health rupee is going. In any case it is difficult to make clear distinctions between such categories of services as curative and preventive or primary and secondary care. One recent estimate suggested that by far the largest part of government spending goes towards curative care and 53.5 per cent could be attributed to urban-based services, whereas only 23 per cent of the population was resident in urban areas. Other estimates place the figure for urban-based curative care even higher, especially in large metropolitan centres such as Bombay, which have such a large concentration of sophisticated hospitals.

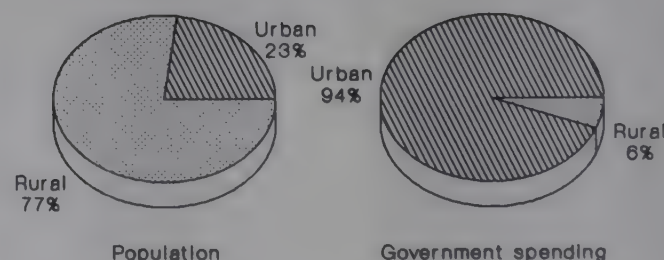
There is, however, a clear and important trend towards increasing expenditure on rural primary health

Box 1

Health Outlays as Percentage of Total Plan Outlay: Trend over Five-Year Plans

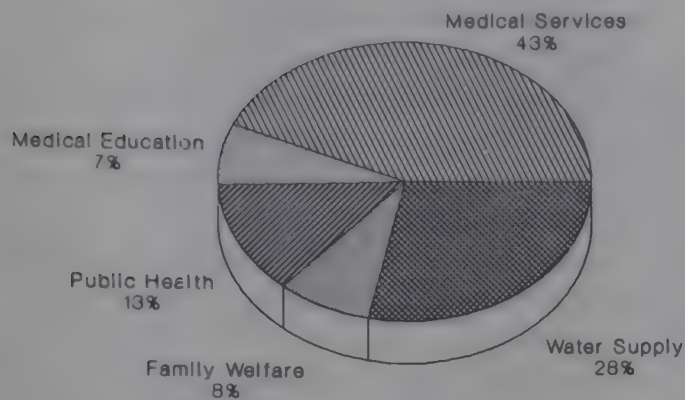


Urban/Rural Disparities in Government Spending



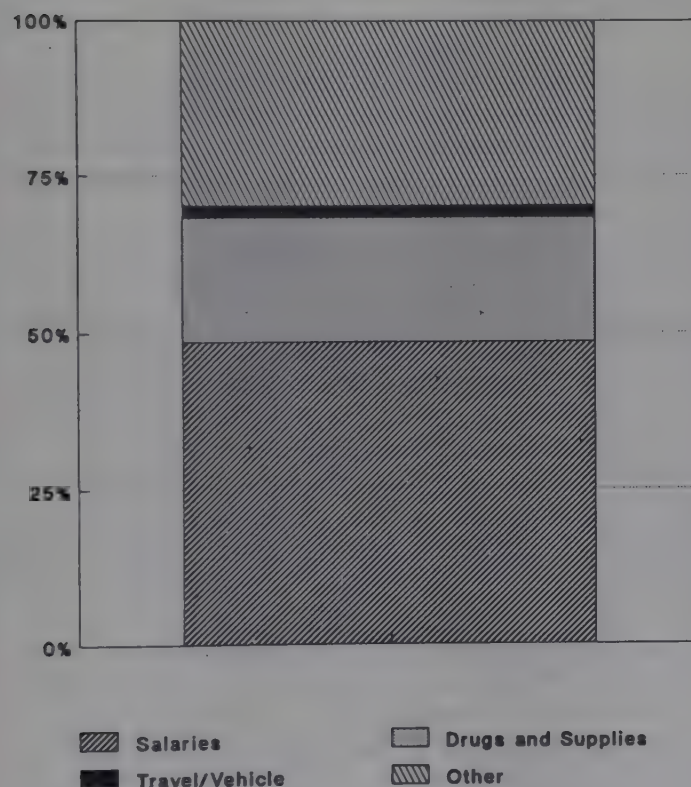
care services, especially maternal and child health care and family planning. These services still remain the poorer cousin in total government spending and family planning programmes still dominate rural services. The family welfare programme has secured an increasingly large proportion of plan allocations (Figure 1). In the Seventh Plan, family welfare expenditures accounted for 1.81 per cent of total plan allocations. As mentioned, however, spending on family planning activities comprise the bulk of family welfare expenditures. Figure 2 shows the breakdown of family welfare spending by

Breakdown of Government Expenditure by Programme Categories



Source: World Bank, 1989.

Composition of Government Expenditure by Major Cost Items



Source: ORG 1986.

expenditure items in the Sixth Plan. Family planning services accounted for 73.3 per cent of total expenditure, while MCH services represented only 13 per cent. Within the family planning services head, compensation payments to sterilisation acceptors accounted for a substantial proportion.

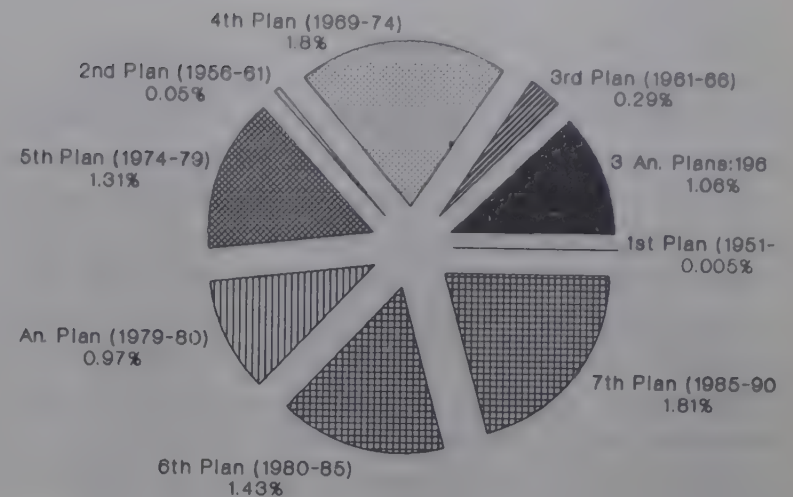
Recently, new schemes have been developed which may not be fully reflected in the statistics on government spending. For example, the universal immunisation programme has received large investments in donor-pro-

vided equipment and supplies and now accounts for a significant portion of maternal and child health spending. However, since government-provided immunisations are carried out by the regular health personnel, many local costs do not appear as additional expenditures. *Despite recent growth, government spending on preventive care and public health services is still modest.*

There is evidence that the constraints on financing primary-level health care takes a toll in poor performance and quality of services. Much to its credit, the government has made significant progress in creating and

Figure 1

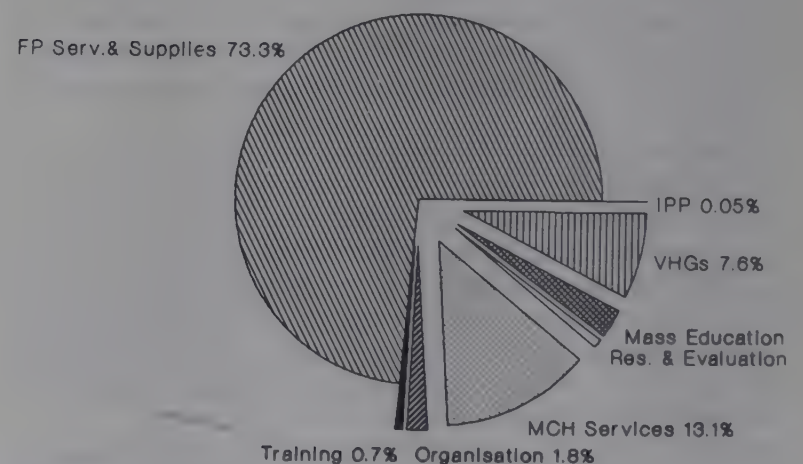
Plan Allocation and Expenditure



Prop. FP Exp. of Total Plan Allocation
Source: Compiled from GOI, 1985.

Figure 2

Disaggregated FP Expenditure



6th Plan (1980-85) Expenditure
Source: Same as Figure 1

staffing low-level health facilities such as sub-centres and PHCs. Much emphasis has been given to fielding ANMs and *anganwadi* workers, both of whom are mainstays of the primary health care services focusing on poor women and children.

Unfortunately, these dedicated front-line workers are often deprived of some of the essential inputs they need to carry out their work efficiently. Sub-centre buildings are often sub-standard and safe accommodation lacking for young female workers. A recent study of the quality of public health services by the Indian Council of Medical Research reported widespread lack of essential drugs and equipment and many shortcomings in technical knowledge and skills of primary level workers, which might indicate inadequate training and supervision. Government budgets reflect these problems, with salaries being by far the dominant item and funds for supplies, travel and transport quite limited.

Government financing for health insurance schemes mainly involves the Employees State Insurance Scheme and the Central Government Health Scheme. Both these schemes are principally financed by the contributions of beneficiaries and their employers. However, the former receives a sizeable contribution from state governments and there has been some central contribution as well. Those enrolled in these schemes can take advantage of special facilities for scheme members and generally enjoy a much higher level of health expenditure than is available from government services to the general public.

Health insurance schemes for individuals and corporations have recently become available through the General Insurance Corporation of India and other government-owned monopolies. These schemes are still fairly new and are subject to revision as membership grows and more experience is gained. To date, this line of business has had only limited success, and, of course, any

Box 2

STATE HEALTH INSURANCE

Health coverage is provided by the state and central governments to workers in the organised sector through the Employees State Insurance Corporation (ESIC) and Central Government Health Scheme (CGHS). These schemes were conceived as a social security benefit for workers in the formal sector. They function as a form of compulsory health insurance where employers of over a fixed number of workers are legally bound to provide health coverage to employees. Contributions are made by both workers and employers through direct deductions from workers' salaries, and a payroll tax that is levied on employers.

Enrolled workers and their dependants are eligible to use special designated ESIC and CGHS hospitals. The number of ESIC hospitals in India rose from thirty-one in 1969 to 104 in 1989. In the absence of insurance facilities in the vicinity, employers are also entitled to contract out to the private sector, a practice commonly undertaken to provide general practitioner services. A panel of private practitioners are paid a fixed amount per insured person to provide health coverage. This is a capitation-based payment system.

The proportion of expenditure on ESIC as a percentage of total government medical expenditure has increased steadily over successive plan periods—from 0.44 per cent of total medical expenditure in the First Five-Year Plan to 11.49 per cent in the Sixth Plan period. Similarly, the number of people covered by the ESIC scheme, including dependants, increased from 1.29 million to 26.41 million during the same period.

However, this increase in the number of ESIC beneficiaries over plan periods has not been commensurate with the increase in numbers of workers in the organised sector. There has been an actual decrease in the number of insured persons as a percentage of total employees in the organised sector. In the year 1955-56, 38.24 per cent of the total organised sector was covered by ESIC, while in 1984-85 it had dropped to 29.29 per cent. This suggests that the insurance scheme could not keep pace with the rapid rate of growth of the organised sector. Another reason posited is the greater availability of private health insurance policies in the last decade.

Levels of expenditure on ESIC vary considerably across different states in the country. States with high expenditure on

ESIC are usually associated with a relatively larger share of the country's organised sector. They also rank higher in indicators of development and in various measures of industrialisation. States exhibiting lower expenditure on ESIC usually have a relatively smaller share of organised workers, and rank lower on indicators of development and industrialisation. This is with a few exceptions, such as Punjab and Haryana, which rank in the middle range of expenditure on health insurance, but rank high in measures of development and industrialisation. On the whole, however, it can be generalised that the distribution of ESIC benefits is in relation to the size of the organised sector, and level of development and industrialisation in the state.

This raises the question of how equitable a form of health benefit is ESIC? As mentioned above, in 1989 less than 30 per cent of the organised sector was covered by this scheme. This was in spite of the fact that almost 12 per cent of total government medical expenditure went towards ESIC. ESIC expenditure also shows considerable inter-state variations, with states having a relatively larger organised workforce and showing greater levels of development and industrialisation securing more ESIC funds. Further inequity is demonstrated by the fact that the organised sector accounts for only 10 per cent of the country's total workforce.

The quality of care provided by ESIC institutes is widely perceived to be poor. It has been reported that hospital equipment is frequently in a state of disrepair, entire speciality departments within hospitals are often not functioning, and there is gross understaffing at institutes. There have also been accusations of negligence and corruption in ESIC institutes.

Taking these factors into consideration, it is seriously questioned whether state health insurance in its present form is providing quality care in an efficient manner to the organised workforce in the country. And further, whether it is justified that 10 per cent of the population receives special benefits at the expense of the remaining 90 per cent of the country's unorganised workforce. In theory this created a two-tier health system. An urgent review of state health insurance is called for, and an assessment made of who pays and who benefits from the scheme.



losses must eventually be absorbed by the government. The monetary value of benefits in these mainly urban and hospital-oriented schemes is likely to be well above what is provided through the routine public health system.

The government also provides direct health services for employees of a large number of state-owned enterprises such as the railways. These enterprises have often set up their own systems of dispensaries and hospitals and are managed directly by each enterprise.

India's Private Health Sector

Private health care draws on three major sources of financing: private, institutionally-supported services, such as those of many major corporations and business houses; spending by individuals and families on health; and the health care activities of the private voluntary and charitable organisations. In practice, these are often mixed, as when a company provides a hospital for its employees but requires them to pay directly some part of the cost of care.

While no thorough assessment has been made of the health services provided directly by corporate employers, there are numerous case studies available. These show that corporate health systems are generally oriented towards more sophisticated curative care and often include their own hospitals and diagnostic services. Corporations generally spend in the range of hundreds of rupees per employee per year on health care and in

some cases in the range of thousands of rupees. By comparison, government expenditure amounts to about 50 to 80 rupees per capita per year. Corporate expenditure provides a benchmark by which to judge the current

Box 3

CORPORATE SECTOR HEALTH PROVISION

A significant proportion of total health spending in the private sector is represented by corporate health expenditure, that is, health care services owned by large business houses. The last decade has witnessed the mushroom growth of such health institutes in India as Apollo Hospitals and Enterprises Ltd (AHEL), Hinduja National Hospital, Surlux Diagnostic centres, and Escorts Heart Institute. These corporations typically own large urban-based hospitals or diagnostic centres which offer the latest 'state-of-the-art' medical technology.

Health provision by this sector flourished with the recognition that 'health' was marketable commodity, and one which was potentially highly profitable. Initial investments in sophisticated equipment, such as CT, whole body and brain scanners have paid off generously. For example, United Group, which invested Rs 60 lakhs in setting up a brain scanner in Bombay, found they were able to cover their investment costs within two years of operation. Surlux Diagnostic Ltd saw its net profits increase from Rs 45.12 lakhs to Rs 105.44 lakhs within five years of operation. Similarly, AHEL in Madras registered rapid profits. Initial losses in the first two years of operation were transferred to a net profit of Rs 2.11 crores in the seventh year. On the basis of its success in Madras, AHEL has expanded services to other cities in India.

The rapid expansion of corporate sector health provision has been aided by direct and indirect support from the government. This has been in the form of subsidies, tax exemptions and trained medical staff. Many corporate-owned hospitals also receive government grants for a fixed number of hospital beds to treat indigent patients. Monitoring to ensure that grants are in fact used to treat non-affording patients is seldom undertaken.

The sector has also successfully secured finance from commercial institutes. Finance institutes have fast recognised the profitability of corporate medical care, and have provided loans at low rates of interest.

The unregulated growth of this sector has served to further distort health provision in the country. Corporate-owned health services are typically concentrated in urban areas, and therefore increase the already skewed distribution of health resources between urban and rural areas. They also emphasise the use of highly sophisticated medical equipment and technology, thus leading to considerable escalation of medical costs. Moreover, it has been observed that the financial incentives for profit that are created by the market provision of health care have led to over-intervention and overuse of medical equipment and services. The industry has thus created new demands for its product.

The growth of the corporate health sector has largely remained unchecked by the government. Indeed, as stated above, the government has positively encouraged its proliferation by providing both direct and indirect support. Health care provision by this sector, with its emphasis on high-tech medical care to largely urban beneficiaries, needs to be reviewed urgently. Government regulation and control of the corporate health sector is called for to make existing services more accountable and to contain further expansion of this sector.



market cost of providing comprehensive care coverage, especially in urban India today. As mentioned earlier, there is growing interest in providing insurance coverage to corporations to assist them in financing health care for employees and their families.

Everyone is familiar with the contribution to health financing from the pockets of individuals and families. It now accounts for about 40 to 60 per cent of all health spending in India. This includes the small fees paid for the use of public facilities in some areas, the purchases of drugs and tonics from local shops and itinerant vendors, the office charges of private physicians, the professional fees of surgeons and specialists, the costs of consulting traditional practitioners and unqualified providers, and even the purchase of individual health insurance. Virtually no one fails to participate in this area of financing health care.

Even this most universal aspect of health financing is not very well understood. Box 4 summarises the findings of a recent detailed study of spending on health in Jalgaon district, Maharashtra, which is representative of current knowledge.

There is a growing recognition that people do spend significantly on their health (perhaps 5 to 10 per cent of their income) and that this holds true for virtually all income levels. A very large part of household health spending goes to self-treatment and treatment by local practitioners who offer an eclectic range of services combining different systems of medicine. Many of these practitioners have little or no formal qualifications. The medical profession abusively refers to them as 'quacks', but to the majority of the population they are the major providers available and are often known as 'doctor'. The

number of such providers has been increasing more rapidly than qualified medical doctors, a sign of their growing importance in health spending and treatment.

Another sign of growing personal health spending is the rapid growth of India's drugs and pharmaceuticals industry. The large number of drug producers, the excessive availability of inappropriate drug combinations and tonics of dubious clinical value, and the explosion of retail outlets selling drugs, many of which are unlicensed, are all responses to the growing importance of health care for the individual consumer.

Qualified medical practitioners, hospitals, nursing homes and modern diagnostic services also make up a significant part of personal health spending. Such services are most easily available to residents of towns and cities and they seem to account for most of such spending. This situation is, however, changing, as transportation improves and providers pay greater attention to nearby rural areas.

A third part of private health finance is the activity of voluntary and charitable health service organisations. While such groups do not account for a major part of India's health care—they may serve only about 5 per cent of the population—for many groups in the population they are the most trusted or perhaps the only source of quality care.

Voluntary health organisations run hospitals, clinics and dispensaries, and community-based services. They have a reputation for providing appropriate, effective and efficient care. Studies have shown that voluntary organisations tend to provide low-cost services as compared to other private and government sources of care, including both hospital and community-based services.

Box 4

LEVELS AND PATTERNS OF HOUSEHOLD EXPENDITURE ON HEALTH CARE

Summary of findings of a study by Ravi Duggal with Suchetha Amin, FRCH, Bombay.
'The Cost of Health Care: A Household Survey in an Indian District'

In 1987, the Foundation for Research in Community Health (FRCH) conducted an extensive study which aimed to find out how much the common person in India spent, from his or her own pocket, on health care when they fell ill. The research study was conducted in six villages of Jalgaon district in Maharashtra, a district represented by the 'average' Indian village.

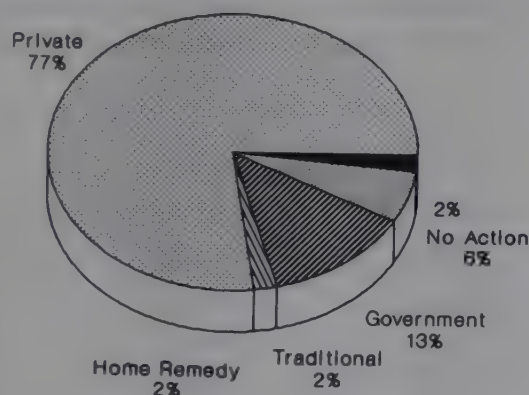
Five hundred and forty-three households with a total population of 3,459 were included in the study. Information was collected on the socio-economic status of households, illness patterns, consumption expenditure, utilisation of services from different health providers, and expenditure on treatment of illnesses. Data on household health expenditure was collected three times over a period of one year, in summer, monsoon and winter.

FINDINGS

1. Utilisation of different health providers:

When people fall ill, where do they go for treatment?

Utilisation of Different Health Providers



Over three-fourths of the people who fell ill consulted a private practitioner or hospital, while only 13 per cent went to a government health facility. Proportionately more of the households falling in the lower income group went to a government facility.

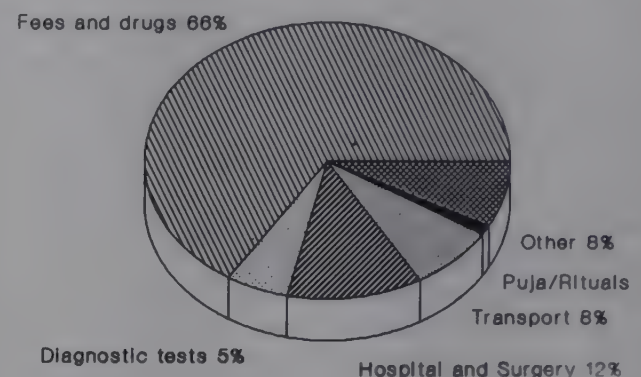
2. On average, 5.75 per cent of the total annual household income is spent on health related expenditure or an estimated Rs 183 per person per year. This excludes spending on maternity cases. High-income households

spend more on health care than do low-income households; per person per year, it is estimated that high-income households spend Rs 367, middle-income households Rs 257, and low-income households Rs 51.

3. Breakdown of household expenditure on health by type of cost:

On what is this amount (Rs 183) spent?

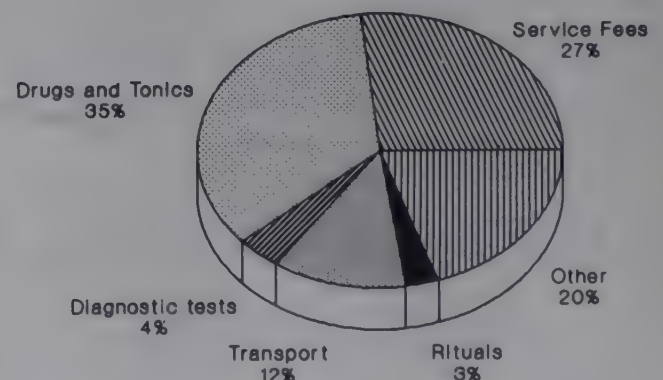
Composition of Household Spending on Health by Type of Cost Incurred



4. For each maternity case it is estimated that on average a cost of Rs 200 is incurred.

On what is this money spent?

Cost Distribution of Maternity Cases



For example, some well-known voluntary groups provide packages of primary health care services in rural villages for only Rs 8 to 15 per person per year, which may be slightly lower than the cost of government-provided services, although there are, of course, differences in the scope of care provided as well.

Voluntary organisations have also been creative in developing innovative forms of health financing. Many organisations raise a significant portion of their operating expenses from patient charges but have also put in place successful mechanisms for assuring that those who cannot afford to pay will not be charged. Other groups

have developed successful income-generating schemes which support health programmes or have involved communities in the financing and management of their own health care. Box 5 describes a variety of these experiences, many of which suggest greater scope for innovation in financing other private and government health services.



Box 5

FINANCING THE VOLUNTARY HEALTH SECTOR

- What sources of funding are available for voluntary agency health programmes?
- What are the financing constraints experienced by the sector?
- Do voluntary organisations demonstrate any innovative forms of community financing, and if so, what are the lessons to be learnt for other health providers?

These were some of the questions posed in a recent survey of the financing experiences of a sample of voluntary health organisations.¹ This survey found that:

1. Voluntary organisations tap a number of different sources of revenue to fund health activities

Sources tapped by the sector included government grants, foreign donations (including those that are administered through the central government and those that are administered directly), and community and self-financing funds. Voluntary organisations usually tap one or more of these sources. Reliance on multiple sources of funding provide organisations with some stability, should one particular source dry up.

2. Experiences with different funding sources varied among the organisations

With government support a common complaint was the long delay in grant disbursement and bureaucratic procedures.

With foreign funds, the complaint was the short-term nature of support. The financing of recurrent costs after the withdrawal of donor funds posed a serious problem to these organisations.

With community and self-financing sources the limited capacity and willingness of people to pay for health care, particularly for preventive care, was recognised as a problem.

3. In the category 'Community and Self-Financing' organisations exhibited some innovative financing methods

These included levying charges for both drugs and service-user fees; asking the community to enrol in a pre-payment/insurance scheme for entitlement to access to community or hospital services, often at a subsidy; running commercial activities, both health and non-health, related to help support health programmes. Examples include diagnostic services, a private nursing home and a day care centre. Some organisations made personal efforts to raise revenue through fund-raising activities: for example, organising sponsored walks, cultural programmes and meals. Instead of cash payments, other organisations provided service-users the option of paying in kind, either in grain or labour.

4. All organisations were concerned that by tapping the community for funds they should not exclude non-affording patients.

Organisations had devised innovative ways to protect poor patients from charges. These included both partial and total exemptions. One organisation raised revenue from a steeply progressive fee scale which charged higher-income groups over the cost of care, and provided a subsidy to poorer patients. Some organisations permitted patients to pay for care in kind.

Reliable assessment of ability to pay, however, was a problem faced by all organisations. In the absence of any formal proof of income, they had to fall back on the discretion and judgement of the 'gate-keeper', usually a doctor or clerk.

¹P. Dave, (1990). *Community and Self-Financing of Health Programmes: Experiences from India's Voluntary Sector*. Ford Foundation.

The Challenge: Financing for Better Health

Despite the massive unmet health needs, health financing in India does not conjure up a picture of an utter lack of funds or resources. India may spend relatively more than some of its better-off neighbours. Certainly, faced with the appallingly high levels of preventable mortality, morbidity and malnutrition, one feels that more could be spent to alleviate this unnecessary suffering. And indeed it could. But the problem is not just the need for more funds—it is also the need to spend more of India's health money more wisely. Thus,

not just more financing for health care, but more financing for things that significantly contribute to improving health. This means increasing and reorienting spending.

For government health services, this challenge implies accelerating the process, already underway, of putting greater emphasis on primary health care. The infrastructure of peripheral health service facilities and providers and the first level of referral care must be completed and, where inadequate, upgraded to meet basic standards for adequate functioning. Additional inputs are clearly needed to assure better quality care through adequate supplies, training, supervision, transport, etc. This is a time of fiscal austerity for the state. Thus, this challenge

FINANCING MEDICAL EDUCATION: WHO PAYS AND WHO BENEFITS?

The government has been spending increasingly larger amounts over successive plan periods on training health personnel. The bulk of this expenditure goes towards training doctors in the allopathic system of medicine. Responsibility for medical training rests with the state government. In the First Five-Year Plan, medical education accounted for 3.47 per cent of total state health expenditure. This includes costs of medical, dental and nursing colleges. In the Sixth Five-Year Plan, the proportion of health expenditure spent on medical education rose to almost 7 per cent. The rate of growth in medical education expenditure has been disproportionately faster than growth in overall health expenditure.

In the First Plan period there were forty-one medical colleges, of which only two were privately owned. By the Sixth Plan there were 123 medical colleges, and the number of privately owned had risen to twenty-one. Thus, the majority of doctors in India are trained in public institutes, largely at the expense of government tax revenue. Even private medical colleges receive indirect support from the government through subsidies and tax exemptions. The proportion of medical education expenditure recovered by the government through fees is nominal. In the Sixth Plan, fees covered only 1.7 per cent of total medical education costs.

An examination of current patterns of employment of MBBS trained doctors indicates that the majority are practicing in (i) urban areas, and (ii) the private sector. The urban concentration of doctors is indicated by the disproportionate expansion of hospitals (and hospital beds) in urban and rural areas relative to the population. For example, in the First Plan, only 39 per cent of hospitals (and 23 per cent of hospital beds) were in rural

areas, where 80 per cent of the population lived. In the Sixth Plan, when 76 per cent of population lived in rural areas, the number of hospitals (and hospitals beds) relative to urban areas had dropped to 26 per cent (and 17 per cent). It has been estimated that only 28 per cent of doctors practise in rural areas.

Of current practising doctors it has been estimated that between 25 to 30 per cent of doctors are employed in the public sector. This includes central, state or local government, Employees State Insurance Corporation, railways, defence, etc. The remaining are either self-employed (i.e., running private practices), privately employed, or have migrated. It was estimated that 10.5 per cent of all doctors who qualified in 1978 left to work abroad.

The above data suggests that although the majority of doctors are trained with public funds, they are largely working in urban settings, in the private sector, or abroad. The equitability of this financing policy should be seriously questioned. Increased government financing for training of non-allopathic practitioners would help redress the rural/urban imbalance of medical practitioners. It is estimated that approximately 56 per cent of non-allopathic practitioners are found in rural areas. Similarly, the government should increase funding for training of lower levels of health workers, such as paramedics. Among other reasons, they are cheaper to train relative to doctors, and are found in greater numbers in rural areas. The problem of loss of doctors to the private sector seem intractable. The policy of compulsory rural public service for qualifying doctors has not operated successfully in the face of a powerful medical lobby. Greater regulation of the private sector is the only viable course of action open to the government.

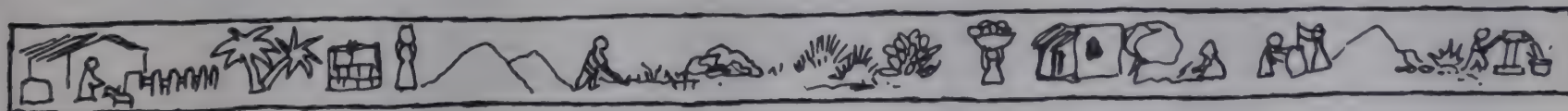
requires further reallocation of resources away from urban-based secondary and tertiary curative care.

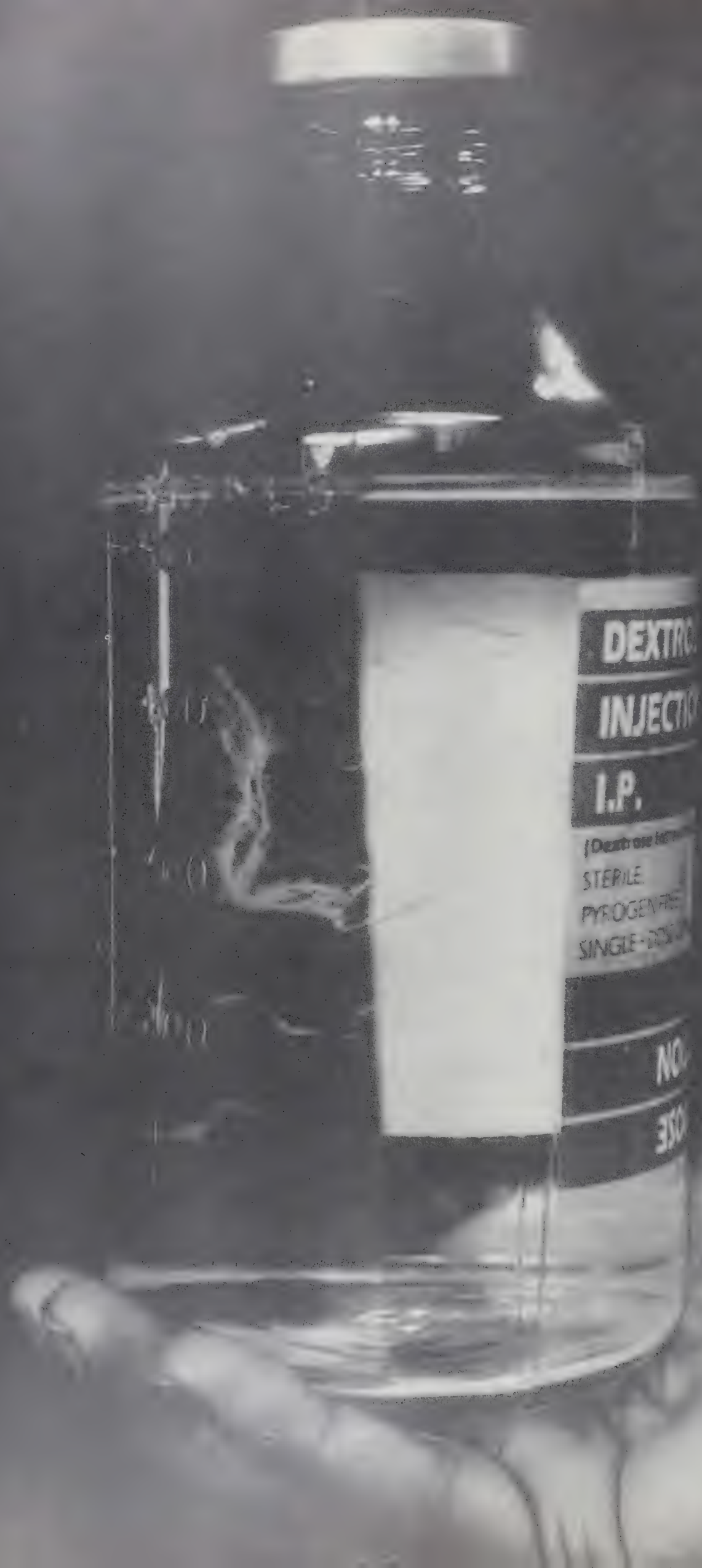
The current range of public sector primary health care schemes addresses many of the pressing health needs of the poor, but far from all. As this volume will demonstrate, malnutrition remains a significant problem, as do a variety of treatable childhood infections. Services to assure safe births for both mother and baby are still inadequate and women still receive insufficient attention for their reproductive health problems. Thus, new programmes and services are still required. Not only reallocation, but increasing new allocations may be needed to address these problems.

Where can these funds be found? First, there is no absolute rule restricting plan spending on health to the current 3 plus per cent. Why not 4, or 5, or 6 per cent? The most direct way to redistribute resources into health is through the use of public revenues raised by progressive taxation. These are choices that can be made if sufficient priority is given to health improvement. Second, money for health care is clearly available

throughout the country, but it is being directed primarily at the private sector. Can some of these funds be reoriented to provide support, either directly or indirectly, to the kind of health care that India needs?

Experiences in the private sector show that many people can afford to and are willing to pay for quality health care and that mechanisms can be developed to collect their contributions while still protecting the access of the poor. Other redistributive mechanisms exist through various forms of health insurance, selective provision of services, etc. Much more could be done to develop such approaches in support of primary health care. What is clear from an analysis of health financing in India is that business as usual will not suffice in addressing the problems as they are today. The laudable goals expressed at Independence of meeting India's health needs have not been realised and the current pattern of financing health care reflects many of the symptoms of that failure. The remedies are still not certain but the process of searching for them must begin soon.





Legal Issues Relating to Health

PART I

There are several laws regulating health care facilities in this country. Some have been laid down to minimise the dangers frequently associated with such facilities themselves. For instance, diagnostic X-rays are important in modern medicine but can cause severe damage if improperly used. Others regulate the quality of health care by attempting to keep a check on self-styled health specialists (such as quacks), while still others have been framed to exercise control on the movement, sale and distribution of toxic substances (methyated spirit and insecticides, for instance). All these laws have been framed for the good of the common man, but are they effective? Our experience has shown that most of the existing laws are comprehensive but are not enforced in letter and spirit. Such indifference to or neglect of these legal provisions operates against the public to the benefit of the violators. In fact, in some instances, there appears to be a tacit nexus between the offenders and the authorities.

Consumer awareness in India is improving all the time. This paper identifies some of these legal provisions in order that the public may be made aware of them. It also suggests methods to ensure proper enforcement of these laws. Each law has been dealt with individually, using personal experiences to exemplify each.

Drugs and Magic Remedies (Objectionable Advertisement) Act, 1954

The Statement of Objects and Reasons

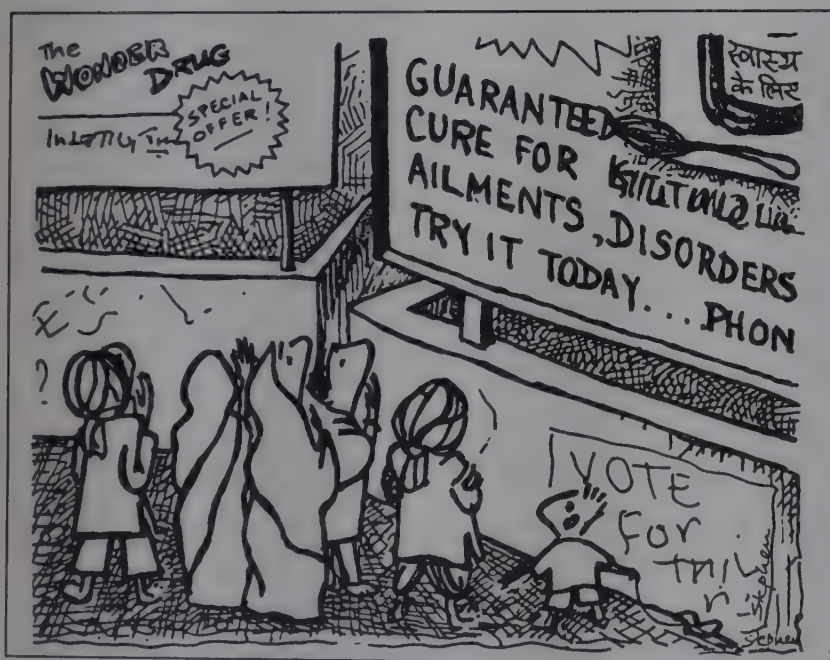
'In recent years, there has been a great increase in the number of objectionable advertisements published in newspapers or magazines or otherwise, relating to alleged cures of venereal diseases, sexual stimulants and alleged cures for diseases and conditions peculiar to women. These advertisements tend to cause the ignorant and the unwary to resort to self-medication with harmful drugs and appliances, or to resort to quacks who indulge in such advertisements for treatments which cause great harm. It is necessary in the public interest to put a stop to such undesirable advertisements. This bill is intended for this purpose.'

The Specific Provisions of the Act

Section 3 of the Act states:

'Prohibition of advertisement of certain drugs for treatment of certain diseases and disorders. Subject to the provisions of this Act, no person shall take any part in the publication of any advertisement referring to any drug in terms which suggest or are calculated to lead to the use of that drug for:

- the procurement of miscarriage in women or prevention of conception in women; or
- the maintenance or improvement of the capacity of human beings for sexual pleasure; or
- the correction of menstrual disorders in women; or
- the diagnosis, cure, mitigation, treatment or prevention of any disease, disorder or condition specified in the Schedule,* or any other disease, disorder or condition (by whatsoever name called) which may be specified in the rules made under this Act.'



Section 4 of the Act states:

'Prohibition of misleading advertisements relating to drugs:

Subject to the provisions of this Act, no person shall take any part in the publication of any advertisement relating to a drug if the advertisement contains matter which—

- directly or indirectly gives a false impression regarding the true character of the drug; or
- makes a false claim for the drug; or
- is otherwise false or misleading in any material particular.'

Section 5 of the Act reads as follows:

'Prohibition of advertisement of magic remedies for treatment of certain diseases and disorders:

* The Schedule appended to the Act lists fifty-four diseases, disorders and conditions about which no advertisement can be made.

No person carrying on or purporting to carry on the profession of administering magic remedies shall take any part in the publication of any advertisement referring to any magic remedy which directly or indirectly claims to be efficacious for any of the purposes in Section 3.'

Section 9A of the Act states:

'Offences to be cognisable... Notwithstanding anything contained in the Code of Criminal Procedure, 1898, an offence punishable under this Act shall be cognisable.'

EXAMPLE 1

As such offending advertisements are a very common feature in the print media in India, as a first step, the present author wrote letters to the editors drawing their attention to the provisions of the Act. It had no effect. The advertisements continued to appear as before.

Since the offence under the Act is cognisable, a test case was initiated in a Magistrate's Court in Ajmer against the then Editor and Publisher of the *Hindustan Times*, Delhi, Mr Khushwant Singh and Dr Raj Hans, for publishing an advertisement by Dr Sablok. After some legal wrangles the case was registered and notices issued to the three concerned persons.

Having failed to get the case dismissed at a preliminary stage, the lawyer for the *Hindustan Times* from Delhi and a local lawyer representing the daily, requested the court to exempt Mr Khushwant Singh, MP, and Dr Raj Hans from personal appearance in the Court on the grounds that they were busy and important persons. This, I resisted. As a result Mr Khushwant Singh and Dr Raj Hans had to come to Ajmer to appear in Court and also executed a bond and surety to appear in Court whenever required. Dr Sablok initially avoided receiving the Court notice, but finally came to the Court and executed a bond and surety. Following this, there were several adjournments in the Court on one pretext or the other. Meanwhile, I was transferred from Ajmer. Later, while I was away, my lawyer also failed to appear and the case was promptly dismissed in default.

However, the above case nevertheless established that:

- The offence is cognisable and any court in whose jurisdiction a newspaper or magazine is sold or circulated has jurisdiction in the case. The offence is deemed to be committed locally and the cause of action is local
- The editor and publisher along with the advertiser are all equally liable for the offence

After I was deputed to SDM Hospital, Jaipur, I addressed several letters to the Director Health Services,

Inspector General of Police and the Health Secretary of Rajasthan, drawing their attention to the provisions of the law and its breach. There was no response.

Mr Marudhar Mridul, a leading lawyer in Rajasthan, agreed to file a writ. The SB Civil Writ Petition No. 1135/1989 was filed in September 1989. The Honourable Mr Justice S.N. Bhargava issued direction to the Inspector General of Police, Rajasthan, to establish a special cell to monitor such advertisements in the print media and initiate prompt action against the offenders. Some cases have been registered by the police. Some newspapers have stopped carrying such advertisements. Much still remains to be done in order for the Court orders to be fully implemented.

Drugs and Cosmetics Act, 1940

This Act provides for the control and regulation of the safe production, distribution and sale of drugs and cosmetics. The power to enforce the provisions of the Act is vested with the state drugs controllers. The Drugs Controller of India coordinates the activities of the state drugs controllers and works to ensure the uniform application of the provisions of this Act throughout the country.

EXAMPLE 2 A

Drug-Induced Blindness

Eye drops and ointments containing steroids are widely used for allergic conjunctivitis. I learnt of a number of patients who went blind (drug-induced cataract and glaucoma) due to prolonged use of these eye drops. Although every text-book of medicine and pharmacology mentions that steroids should not be used for prolonged periods, no warning to this effect is written on the marketed product. No one warns the patient against the grave dangers of using the drug for a prolonged period. Self-medication is very common. Even well-meaning parents continue to regularly medicate their children with these eye drops, oblivious to the dangers. A 6-year old child, the only son of a compounder, was the case that actually put me on the trail. In one year I compiled over eighteen cases of blindness due to prolonged use of eye drops containing steroids. All these young patients were aghast when they learnt that their blindness was because of the drops that they had been using. No one had warned them.

I wrote letters to the Drugs Controller of Rajasthan and of India. Articles were published in the press, giving case histories of the patients to highlight the dangers of steroid-containing eye drops.

One such article in *Rajasthan Patrika*, a Jaipur daily, attracted the attention of the state government. A committee of experts was appointed to investigate the authenticity of the article and to submit a report of their findings.

The committee submitted its report and recommended that all steroid-based eye preparations should carry a warning that prolonged use could lead to blindness due to cataract, glaucoma or fungal infection. The state government forwarded the recommendations to the state drugs controller, who in turn forwarded it to the Drugs Controller of India, instead of acting under the provisions of the Act. The central Drugs Controller returned it to the state drugs controller, agreeing with the recommendations of the committee. The state drugs controller still did not act. Even the report of the committee was not made public.

A writ petition was filed in the Rajasthan High Court. In the DB Civil Writ Petition No.1107/1987 decided on 20 January 1989, the Honourable Mr Justice Mahendra Bhushan Sharma and Mr Justice I.S. Israni directed the Drugs Controller of Rajasthan to take necessary steps under the powers vested in him by the Act to ensure that the warning 'prolonged use may lead to cataract, glaucoma or fungal infection' was printed on all eye preparations containing steroids. Their lordships have extensively quoted the specific rules under which the state drugs controller is to exercise the powers. This was to allay the impression of the state drugs controller that such powers are in fact not vested in him.



A number of the steroid preparations now carry this warning. Others do not. The Court orders have been followed only partially and that too not in true spirit. No public warning was issued by the Drugs Controller against the prolonged use of steroid-based eye drops even though a large number of cases were brought to his notice. The matter has to be pursued further not only to bring it to its logical conclusion, but to ensure that the state drugs controllers perform their duty conscientiously.

EXAMPLE 2 B

Banned and Bannable Drugs

SB Civil Writ Petition No. 1133/1989 was filed under the Drugs and Cosmetics Act. The plea was that the decisions of the Drugs Consultative Committee and the Drugs Technical Advisory Board, the highest technical bodies under the Act, once accepted and communicated by the government, are binding on all health authorities and government doctors. A drug that has been declared harmful or irrational by the technical bodies cannot be purchased or prescribed by any government authority. This, irrespective of the fact that the orders of the government prohibiting the manufacture and sale of the drug might have been stayed by a Court. Prohibiting the manufacture and sale of a drug and directing all government doctors not to prescribe a drug that has been found to be harmful are two different consequences that flow from the decisions of the Drugs Consultative Committee and the Drugs Technical Advisory Board.

An interesting observation that was made by the Court during the hearing was that a stay order by one High Court is not automatically binding on the other High Court.

Evidence has been produced before the Court that banned drugs are still being purchased, prescribed and reimbursed by the health authorities. The case is still pending before the Court.

The Atomic Energy Act, 1962

The Atomic Energy Regulation Board constituted by the central government under the provisions of the Act have codified the mandatory safety provisions for diagnostic X-ray units, vide AERB, Code No. 8C/MED-2 Safety Code for Medical Diagnostic X-ray equipment and installations.

The safety code lays down in specific detail the mandatory measures that have to be adopted to prevent unnecessary radiation for patients and to the public at large. For instance, appointment of a Safety Officer approved by the AERB, appropriate cover for body parts not being X-rayed, prohibiting the presence of unpro-



tected people during the procedure, and lead-lining of the doors to prevent scattered X-rays from leaving the room are all included in the rules.

However, there is no state government machinery to ensure that the mandatory safety provisions are followed. Nor do X-ray units follow these provisions. With commercialisation of diagnostic X-ray clinics and their rapid proliferation, the public is gravely at risk.

EXAMPLE 3

After writing to all the authorities to appraise them of these mandatory provisions, and having failed to persuade them to do their duty under the Act, a writ petition has been filed in the High Court. The notices have been issued to the Union and the state governments.

The Indian Medical Act (1956, Amended 1964) and the Medical Degrees Act, 1916

Provisions of these two Acts have been invoked through the State Medical Council to prevent doctors from advertising, an unethical practice by doctors, professional misconduct and use of unrecognised or fake degrees by doctors. The State Medical Council must be made to regulate and supervise the professional conduct of the doctors registered with the Council and to ensure the standards of medical practice. (For more details on unethical medical practice see earlier publications).¹

¹(a) What Patients should know about Doctors. *The Statesman*, 29 January 1991.

(b) Adhunik Chikitsya Prashna aur Prashna. *Dainik Navjyoti*, 5 May 1988.

(c) Chikitsa Sevaon ka Girta Star. *Rajasthan Patrika*, 12 August 1986.

(d) Unethical Abortions. *The Times of India*, 27 July 1986.

(e) *Rakhwale ke Dushman, Chikitsa ke Badhte Charan Girta Star*. Panchsheel Prakashan, 1989.

The Insecticide Act, 1968

Legislation governs the distribution and sale of pesticides used when storing grain. In general, they can only be sold to warehouses. This is a discerning law that seeks to prevent such dangerous pesticides from being consumed either accidentally or deliberately. Aluminium phosphide is a case in point.

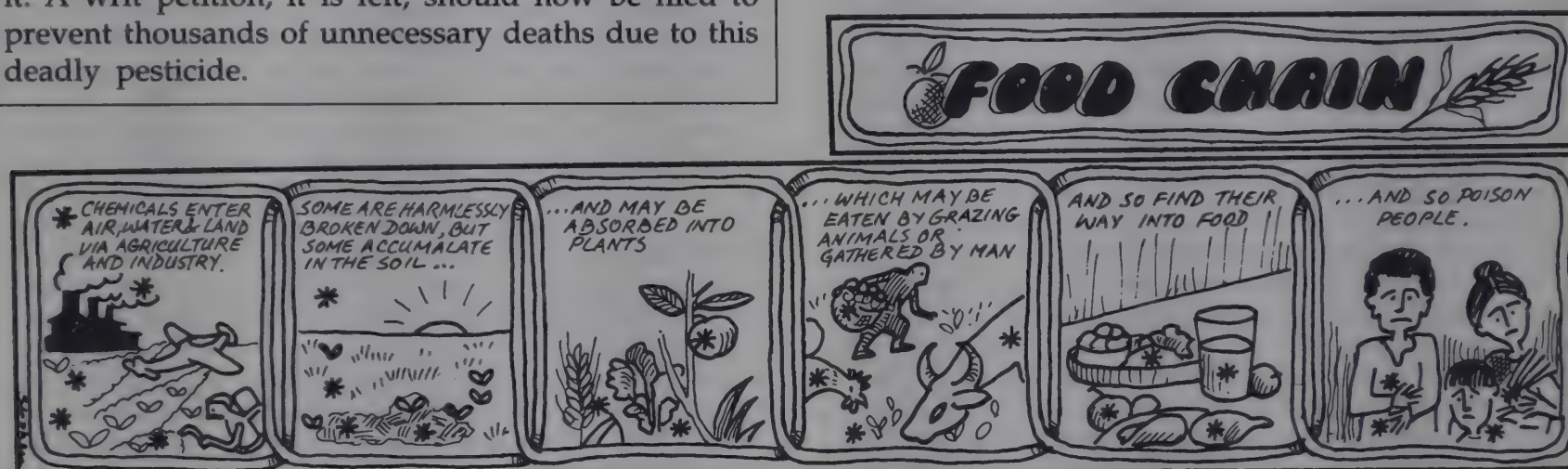
EXAMPLE 4

The provisions of this Act were invoked to stop the availability of the deadly pesticide, aluminium phosphide, in the open market. Several articles have been written about the numerous deaths that result each year from aluminium phosphide ingestion. All the authorities have been written to. Questions have been raised and answered in Parliament. Though it has been asserted by almost every concerned authority that the open sale (for domestic use) of aluminium phosphide is illegal, nothing has been done to prevent it. A writ petition, it is felt, should now be filed to prevent thousands of unnecessary deaths due to this deadly pesticide.

Conclusion

I have drawn upon these real-life situations to illustrate: (a) how regulations relating to public health are being openly flouted; (b) the government's generally apathetic attitude towards these violations; (c) that mere correspondence—no matter how persistent—with the concerned authorities rarely sets things right; and (d) appealing to the courts of law for justice, which is every citizen's right, may be the only solution.

There are enough laws in existence to cover most health-related situations (some of the more unusual problems may still be uncovered). Although space does not permit them all to be discussed in depth, this paper is an attempt to help health professionals and the lay public to become aware of these laws, through the media and, of course, their own efforts. Most of these regulations are good, solid, and based on common sense: the law per se only tries to fill any lacunae and prescribes punishment for violations, no doubt couching everything in legalese.



Box 1

An 8-year old boy, a precious child born after ten years of marriage and the only son of his parents, lost vision in both eyes not as a result of some disease but because of the prolonged use of steroid-based eye drops to combat allergic conjunctivitis. His parents were ignorant of the dangers; no one had warned them. And, no statutory warning to this effect was printed on the preparation.

Eighteen such cases of young men and women suffering from drug-induced blindness were collected in one year from one small city, pointing to the wide prevalence of such unfortunate occurrences. The Drugs and Cosmetics Act can be invoked to mend this unfortunate situation.

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A catchy advertisement in the lay press commends a sex tonic. An erotic picture tells what is not stated in words. Other advertisements promise a remedy for cancer. Yet others sell a uterine tonic or commend a medicine with incomplete and misleading information. All these lead to self-medication. Everyone feels cheated; a number of them suffer.

The Drugs and Magic Remedies (Objectionable Advertisement) Act prohibits all such advertisements. The offence is cognisable and the publisher, printer and editor are liable along with the advertiser.

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X-rays are not innocuous. Their potentiality to cause cancers and congenital anomalies are well-established. Detailed safety regulations exist, but are not adhered to or enforced.

A young lady accompanies a child to an X-ray clinic. She is asked to hold the child while he is being X-rayed. She is not provided with a protective lead coat; a week later she discovers she is pregnant. The scattered radiation that the embryo received might cause congenital anomalies in the child or may be the cause of cancer in later life. Are the X-ray units liable? What are the safety provisions?

Mandatory rules framed by the Atomic Energy Regulation Board under the Atomic Energy Act detail the provisions. Enforcement of these provisions would prevent thousands of congenital anomalies and cancers caused by the unsafe operation of diagnostic X-ray units in the country.

HEALTH AND LEGAL REMEDIES

It is ironical that in a market economy it is not the consumer but the producer who has dictated terms. But radical changes are on the anvil with the individual being given greater rights to demand conditions necessary for a healthy life—from the government and other agencies.

There exist several Acts which protect the citizens of India in matters related to their health. Amongst these are the Prevention of Food Adulteration Act (1956). Sub-standard food items find their way into the market, often through the Public Distribution System, and pose a serious hazard. Amended in 1976, this Act has been made more stringent and includes within its purview putrid, unsanitary, stale, rotten and insect-infected foods, carrying also a prison sentence of six months to three years, and, if the food marketed leads to death, even life imprisonment.

The last few decades have seen the astonishing progress in medical technology and a wide range of drugs—not always essential—are available across the counter. Often, the nexus between the drug manufacturer, medical practitioner and chemist jeopardises the health and well-being of the individual. The Drugs Control Act (1956) covers the regulation, control, distribution, sale and supply of drugs and pharmaceuticals. Under the Act, a defaulter can be imprisoned for up to three years and the goods confiscated.

The Drugs and Cosmetics Act now extends to ayurvedic and unani products as well. It protects the consumer from small manufacturers or quacks who might not practice quality control. Under the Act a defaulter can be imprisoned for three to ten years.

Offences under all three Acts are cognisable. What action can a consumer take if he wishes to take an issue to Court? The Indian Penal Code (IPC) provides the range of offences for which legal action can be taken while the Criminal Procedure Code lays down the mechanics which must be followed in this regard. Under the IPC, there are basically two types of offences: cognisable and non-cognisable. A person who wishes to lodge a complaint must file a first information report (FIR) at the police station. If the offence is cognisable, the police can take action on the report and after recording the case, may make preliminary investigations and place them before the Court.

If the offence, on the other hand, is non-cognisable, the case is recorded for information alone and the police need not take any further action. However, the aggrieved party has the option of going to a Magistrate's Court and lodging a complaint. After the Magistrate issues summons to the offender, a trial is initiated.

Writ petitions can also be filed before the High Court under Article 226 or before the Supreme Court under Article 32. Under these Articles, it is possible to file writ petitions on matters presumed to impinge on the fundamental rights of citizens—such as the right to life and liberty—both of which are very broadly defined and can safely be extended to entail the right to a healthy life. Thus, a chimney of a factory vitiating one's

immediate environment, a river affecting water supply or improper treatment of drinking water leading to malaria, can all be presented to a Court as cases where one's right to life is jeopardised.

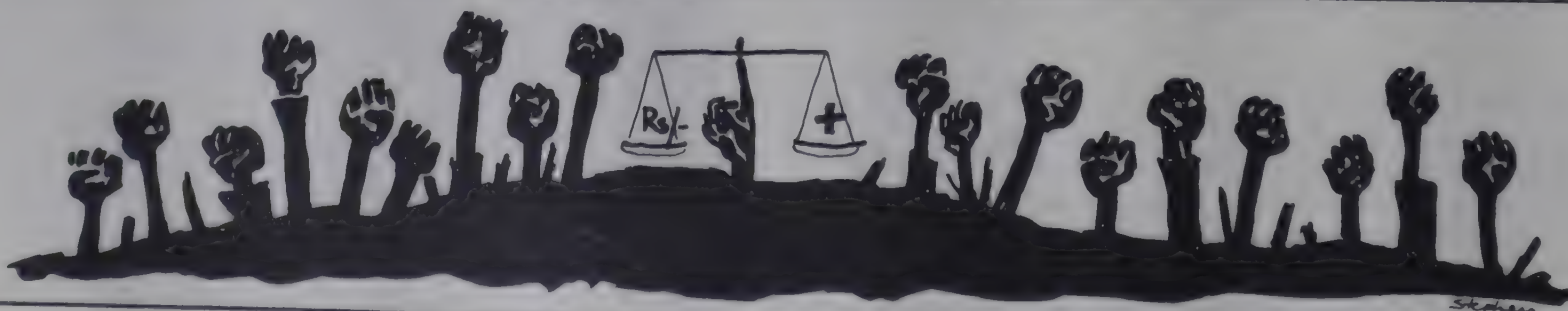
The Consumer Protection Act (1986) opened up more avenues for ordinary citizens wishing to take legal action. This Act gave consumers the sanction to directly take up issues in order that their grievances might be redressed. This Act guarantees certain rights to the citizen, such as the right to seek redressal or the right to be heard before a Court of law, the right to be educated on consumer issues, the right to ensure that competition is available for products, and the right to information on products. This Act covers goods as well as services (such as catering, transport and insurance) and has even made government services answerable before the law.

This Act calls for Consumer Protection Councils to be set up at the centre and in every state, but these are only deliberative bodies. Redressal machinery is envisaged under this Act as a three-tier system which has now been established. The National Commission for Consumers' Disputes Redressal forms the apex of this system, headed by a working or retired Supreme Court Judge and four other persons including a lady social worker. This forum handles those cases where the claim or total cost involved exceeds Rs 10 lakhs. Similarly, the State Commissions handle cases where the claims are between Rs 1 to 10 lakhs and the district forums deal with claims below Rs 1 lakh.

Services in all these forums are free of charge and a clearance time of ninety days has been laid down to ensure that cases are expedited. Although it is not necessary to hire lawyers, many individuals or organisations do so and this practice usually causes delays. Moreover, district commissions in certain areas such as Delhi may be overwhelmed with cases and may have up to 5,000 pending cases. In such a situation, it is impossible to clear any given case within the stipulated period. Further, although each district was envisaged to have its own forum, only 180 forums have been established so far.

Legal statutes to counter non-compliance to the constitutional rights and directives have hitherto proved ineffective and in most cases have been under-utilised mainly because of a lack of information and mystification of the medical system. Moreover, health has not been very high on the list of priorities of the common man who is bogged down by the tensions of everyday living.

For the person in the street, legal remedies conjure up an image of courts, lawyers, serpentine queues and endless expenses. Till now, over 400 consumer groups, social action groups and some individuals with commitment and zeal have taken up cases on behalf of individuals. Individual initiatives to demand legitimate rights cannot be replaced by any degree of legislation. It is perhaps necessary to demystify the layperson's perceptions of the futility of legal processes and to make him feel empowered and in control.

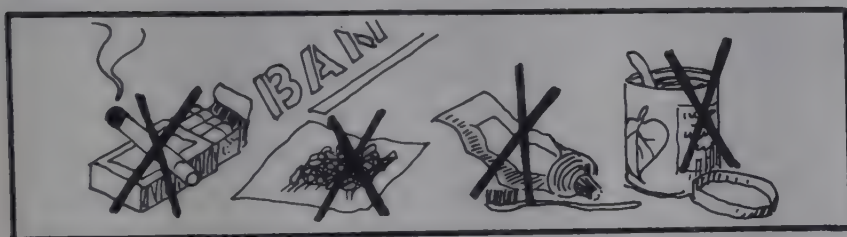


PART II

Some of the primary duties of the state according to the Directive Principles in the Constitution of India are to raise the level of nutrition and standard of living of the people and the improvement of public health. The health of the people, however, continues to be the last priority. State regulation has not been found to be effective in taking action against persons who commit offences relating to health. The Indian Penal Code makes it an offence to adulterate food and drinks, sell noxious and adulterated foods and drinks, or to adulterate drugs. Under Article 21 of the Constitution, a person has a right to life. It is a Fundamental Right and the state is expected to take all steps to ensure that this right is realised by the people in India.

One of the earliest legislations to protect health is the Prevention of Food Adulteration Act, 1955. Although this law has been in force for more than thirty-five years, its objectives have not been realised. It is, however, gratifying to note that some consumer organisations have identified certain legal issues relating to health.

Ban on Advertising and Sale of Tobacco and Tobacco-Related Products



The Consumer Education and Research Society (CERS), Ahmedabad, has been actively involved with the health problems of consumers caused by smoking or the use of tobacco in any form. According to a study by the World Health Organisation, about one billion persons were smokers in 1986 the world over. The morbidity rate has been put at 3.5 million and it is estimated that by the end of the year 2000, about four million persons will die each year as a result of smoking. Surprisingly, the rate of smoking in the developed countries has shown a declining trend, but is rising by 2 per cent per year in developing countries. Some of the legal issues which have been formulated by this organisation (henceforth referred to as the Centre) or CERS are:

- (a) Whether advertisements on the use of tobacco should be allowed and the methods to be adopted to challenge such advertisements in the Courts or tribunals
- (b) should the manufacturers of tobacco and tobacco-based products be made liable for the damage suffered by the users
- (c) should the legislation enact any law to curb smoking.

Box 3

VOICE: SPEAKING OUT FOR US ALL

VOICE—Voluntary Organisation in the Interest of Consumer Education—is a consumer action group of about a dozen people from Delhi University. VOICE has been engaged in a long battle against ITC's 'Made for Each Other' contest which is part of the advertising campaign for a well-known brand of cigarettes.

VOICE's campaign was first launched in 1984. Using the MRTP Commission as its forum, VOICE declared the contest that ITC had been organising for sixteen years as an unfair trade practice and one which should be stopped.

Through advertisements, couples were invited to participate by sending in their photographs to the 'Made for Each Other' contest, the only condition being that one of the couple must be a smoker. The best looking couples were then selected at a preliminary round and at the final round the 'Made for Each Other' couple was selected at a gala function and fabulous prizes given away.

When VOICE lodged a complaint in October 1984, the MRTP Act had just been amended and had laid down the definition of an Unfair Trade Practice. The Commission said that any visible, oral or written statement which misleads the consumer is an unfair trade practice, and the MRTP Commission has jurisdiction all over India to put a stop to it. They also said that organising of a contest or a game of skill to promote business or sales, or the company's business interests, is also an unfair trade practice. VOICE alleged that the contest was an unfair trade practice and asked the MRTP Commission for a temporary injunction, restraining the ITC from holding the contest and withdrawal of all its advertisements all over the country. The Court was convinced that *prima facie*, the contest was an unfair trade practice and a temporary injunction was issued in VOICE's favour, restraining the ITC from carrying on the contest in 1984. All the advertisements and hoardings were removed. But the ITC moved the Delhi High Court and within fifteen days obtained a stay on the order issued by the MRTP Commission. This began the second round of litigations in the Delhi High Court. In the meantime, the ITC held the contest, gave away prizes, and it took VOICE about eight months to convince the Delhi High Court that their intervention was unwarranted, that the Commission had yet to look into the legal issues, and therefore the stay should be vacated. The stay was vacated and in 1985 the enquiry began.

Between 1984 and November 1988, VOICE had twenty-five hearings in Court. The MRTP Commission's verdict can only be appealed in the Supreme Court. The ray of hope for VOICE is that no contest has been held since 1986. 'But halfway through our litigation', says Sriram Khanna, convenor of VOICE, 'we realised that even if we won the case, what would we have achieved? Merely that the contest would not be held. But the advertising campaign for using the 'Made for Each Other' slogan would still continue. The company would not withdraw the advertisements, saying that it did not relate to the contest. So, we consulted our legal advisers, and in 1985, made a second attack against the advertisement itself.' VOICE held that the use of the advertisement, depicting a happy man and woman with the slogan, 'Made for Each Other', is a misleading one that leads the public to believe that smoking is associated with conjugal harmony.

Emphasising that any attack against a corporation must be multipronged, Khanna said that when they found out that these were 'high tar' cigarettes (by British standards), they also argued that the advertisement influences smokers of low

tar cigarettes to switch to high tar cigarettes. 'Our biggest difficulty has been to convince the judges of things which we are all convinced about. You cannot just go to a judge and say "This is an unfair practice", or, "Cigarettes are dangerous". The judge will want proof. And for that, we need witnesses. I'm afraid I must say that those who claim to be the leaders of the medical profession are mostly spineless people; they just do not want to step into the witness box and speak. If you want to fight, you can't fight by making seminar speeches. You have to take action. I have not been able to find a single doctor of any standing in this country to date, who is willing to step into the witness box and say that this campaign is misleading. You are taking on an MNC at a game at which they are most adept—litigation.'

Today, the fate of the case hangs in the legal balance, but Khanna is optimistic. 'We feel we are now at a stage where the ITC cannot get out of it. They could have if they had kept their stay order in the Delhi High Court. What if we do win the case? Well, the implication is that with this one single ruling, you can hit all the tobacco companies. All the ads could be challenged on the same grounds.'

Source: *Health for the Millions*, December 1988.

Tobacco-based Toothpaste

The CERS filed complaints against two manufacturers of toothpaste which contained tobacco on the grounds that the advertisements were misleading and that the manufacturers should be compelled to print a warning on the package that the use of tobacco-based toothpaste (known as creamy snuff) is detrimental or injurious to health. In this connection data was collected on the carcinogenic effect of tobacco-based products. It is indeed surprising that the Drug Administration had granted both these companies licences to manufacture the creamy snuff. When the cases came up for hearing before the Monopolies and Restrictive Trade Practices (MRTP) Commission, the respondents sought to justify the manufacture of such products on the grounds that they had been properly licensed by the state government for this purpose. Furthermore, the Director General (I&R) of the Commission had also given a favourable preliminary investigation report (PIR). However the CERS was able to convince the MRTP Commission that neither the PIR nor the fact that the manufacturers of these items had been licensed to produce this commodity were relevant to the issue of unfair trade practice. The manufacturers of the creamy snuff had in the advertisement claimed that it was refreshing when in fact it could produce short giddy spells and even prove addictive. The Commission disregarded the PIR and issued a notice of inquiry. When the respondents realised the futility of their defence they entered into a compromise and agreed to insert a warning to the effect that the use of creamy snuff may be injurious to health.

Use of Pan Masalas

The CERS filed a petition in the National Commission against a manufacturer of Pan Masala on the grounds that it contained tobacco, which was injurious to the health of the consumers. Before the complaint could be taken up for hearing the Government of India issued a notification dated 8 March 1990, under which the prevention of Food Adulteration Act was thus amended:

In the Prevention of Food Adulteration Rules 1985 (hereinafter referred to as the said rules), after sub-rule ZZZ(2) of Rule 42 of the said rules, the following shall be added, namely:

ZZZ(3) - Every package of Pan Masala and advertisement relating thereto, shall carry the following warning, namely:

'Chewing of Pan Masala may be injurious to health.'

The CERC was instrumental in having this notification issued by the Ministry of Health and Family Welfare.

Suits for Compensation against Manufacturers of Tobacco

In the United States of America, momentous developments have taken place in this area. A case in point is that of Cipollone vs. Liggett, in which the company was ordered to pay US\$ 400,000 in damages for their responsibility in the death of a smoker, Rose Cipollone. This decision will be useful in processing similar claims against tobacco companies in India as well. Leading consumer and health organisations are already working on 'Ban on Smoking' projects. Once their work is complete it will enable consumer lawyers to more effectively deal with cases of compensation in the Courts.

Provision of Potable Water to Weaker Sections of the Society as well as Tribal People

Under the Directive Principles, the state has been enjoined upon to improve public health. The state has spent vast sums of money on providing potable water. Although substantial progress has been made in this regard in towns, the rural areas, particularly tribal areas, have not received benefits under the various schemes framed for this purpose. It is indeed regrettable that state agencies charged with the responsibility of providing potable water have exhibited callous disregard of their duties in this regard. The few cases filed by the CERS in this regard provide an insight into the situation prevailing in India today.

CERS vs. Ahmedabad Municipal Corporation

The case was filed before the National Commission against the Corporation for its failure to ensure that water supplied to the residents of Ahmedabad city was free from contamination. During the monsoon season of 1988, there was an outbreak of cholera and gastroenteritis of epidemic proportions that claimed 350 lives. The main cause of the epidemic was contamination of the drinking water provided by the Municipal Corporation. The CERS claimed damages amounting to over Rs 5 crores on behalf of the next-of-kin of the deceased victims.

The National Commission dismissed this petition on the grounds that dereliction of duty on the part of the Municipal Corporation had not been established. This conclusion was arrived at by the Commission without

providing the complainant an opportunity to lead evidence. Aggrieved by this decision, the CERS filed an appeal in the Supreme Court on 22 October 1990.

The involvement of the CERS in this case brought to light one important fact. Before filing the case, the organisation conducted an in-depth study of the socio-economic background of the victims. The study revealed that 90 per cent belonged to the poorest section of society, with a family income of less than Rs 500 per month. Most of the victims were children.

CERS vs. State of Gujarat

In another petition filed before the High Court, Gujarat, the CERS took up the case of the tribal people living in the state. A study conducted by Sobhana Riswadkar revealed that schemes for the supply of water



to tribal areas had not been implemented effectively, with the result that the residents faced a severe scarcity of water during the summer months. The tribals had to traverse a distance of 1 to 2 km to fetch potable water. The CERS requested that the schemes for the supply of drinking water to tribal areas be implemented effectively so that the inhabitants of those areas were not deprived of potable water which is essential for human life. Denial of potable water, the CERS claimed, is a denial of the right to live under Article 21 of the Constitution.

In its order dated 4 October 1990, the High Court dismissed the petition on the grounds that information on the present position regarding the supply of water in these areas had not been collected by the petitioner. The petitioner has been given the liberty to move the High Court again once this information is collected.

It is thus evident that the High Court has indirectly conceded the right of the tribal people to get the benefits of the scheme for water supply. It is, after all, a Fundamental Right under Article 21 of our Constitution.

Marketing of Products Suspected to be Carcinogenic or Injurious to Health

Recent advances in science have brought to light the injurious effects of certain cosmetics such as hair dyes and fluoride in toothpaste. The manufacturers of these products are well-known multinationals or local manufacturers collaborating with these multinationals. They have adopted powerful advertising campaigns to promote the sale of these products. Taking advantage of the low level of awareness among the people of developing countries in this regard, these multinational companies have been successful in finding an unlimited market for the sale of these goods in these countries.

The CERS marshalled its resources to protect consumers against the hazards of these products. The techniques used in this connection are lobbying, use of media and, in appropriate cases, the use of legal processes.

Hair Dyes

A large number of permanent hair dyes contain para-phenylenediamine. Recent experiments conducted on rats indicate that these chemicals are carcinogenic. A complaint was filed against a leading manufacturer of such hair dyes in the Gujarat State Consumer Disputes Redressal Commission. In its advertisement, the hair dye was stated to be 'totally safe'. This, despite the statutory warning contained on the label and the wrapper that consumers could be allergic to this chemical. The Commission did not grant the appeal that the manufacturer be compelled to print on the label the warning that

the use of the hair dye could be injurious to health. The Commission relied on the ISI standards formulated in 1978, and did not find itself in a position to take judicial note of the findings of more recent research conducted after the 1978 ISI formulations. This is a sad commentary on the performance of our departments and institutions concerned with the health of the people. In any case, the Commission did direct the manufacturer not to describe the hair dye as 'totally safe'.

Fluoride in Toothpaste

On the basis of research conducted by competent scholars, it has been found that India is rich in minerals containing fluoride. Besides water, agricultural crops are heavily contaminated with fluoride. According to competent medical opinion, permissible limits for human consumption of fluoride vary between 0.5 to 1.5 parts per million (ppm). However, in many areas in India, the maximum level of fluoride in drinking water detected thus far is 38.5 ppm.

The injurious effects of fluoride to health have been brought out by competent researchers in recent years. It is accepted beyond doubt that the use of fluoride above 1.5 ppm is injurious to health and it may cause the dreaded disease known as fluorosis. If the proportion exceeds 2 ppm it may result in crippling fluorosis and severe osteoclerosis. On the basis of initiatives taken by the CERS, the Ministry of Health and Family Welfare has been seized of the matter and it issued Draft Rules vide notification No. GSR 410 (F) dated 29 March 1990, which seek to suitably amend the Drugs and Cosmetics Rules, 1945. Keeping in view the slow movement of government agencies, the CERS filed a petition in the National Commission, appealing that the manufacturer should desist from manufacturing, advertising, selling, labelling and exhibiting fluoride toothpaste which does not comply with statutory requirements, and insert a warning that fluoridated toothpaste is injurious to health, especially for children.

In the meanwhile, every effort is being made to activate the bureaucracy to ensure that the Draft Rules are enacted into the law for the safety of consumers.

Adulteration

Serious cases of adulteration of drugs and edible oils have come to light and are a cause of great concern. Goods which present a serious risk to the health or safety of the consumer should not be allowed to reach the market, and wherever this is not possible, steps should be taken to prohibit their sale or supply.

Drugs

In JJ Hospital, Bombay, fourteen deaths took place between 21 January and 7 February 1986, as a result of

the manufacture, distribution and use of pesticides. In India, the Registration Committee set up under the Insecticide Act, 1968, has a pivotal role to play in this regard. It has the power to register insecticides, taking into account their efficacy and safety to humans and animals. Registration of an insecticide is granted on the basis of the criteria laid down in the Act. The Committee has registered about 140 insecticides so far.

One of the serious complaints has been that India is not only an importer of banned pesticides but it also manufactures items such as parathion, nicotine sulphite, DDT and BHC which carry a total or partial ban in developed countries. Consumer organisations will have to take appropriate action in this regard so as to put an end to the use of pesticides suspected to be carcinogenic. The legality of manufacturing, distributing and selling such pesticides could be tested in the Courts.

In Part XIV of the Prevention of Food Adulteration Rules, 1955, maximum residue limits have been laid down in the case of about forty pesticides. No such limits have been prescribed for another 100 insecticides which have been registered. On the basis of studies conducted in some large towns, it has been found that pesticide residues in food are much higher than the prescribed limits, sometimes as high as 80 per cent of the maximum as against less than 15 per cent in the United States. The CERS held a National Workshop on Pesticide Residues in Food in 1988. The papers presented dealt with all important aspects of pesticide residues in food, including the legal aspects. The proceedings of the workshop have since been published.¹ In order to protect the health of people from injury due to pesticide residues, prosecutions could be initiated under the Prevention of Food Adulteration Act by recognised consumer organisations. However, no such action seems to have been taken so far by any aggrieved person or consumer association.

Pollution

With rapid strides in industrialisation, the problem of pollution in India has become a matter of national concern. Three important laws have been passed since 1974 to protect people from pollution. There are, the Water (Prevention and Control of Pollution) Act, 1974, Air (Prevention and Control of Pollution) Act, 1981, and the Environment Protection Act, 1986. Though sweeping powers have been vested in the central and state governments to prevent and control water and air pollution, the enforcement machinery in most states leaves much to be desired. In order to activate the governmental agencies to perform their functions under the law, some cases have been filed in the Courts. In a petition filed before the Supreme Court, a public-spirited individual pleaded for appropriate orders to be passed



against tanneries in UP for polluting the waters of the Ganges. The Court passed several orders directing the tanneries to comply with the provisions of the law contained in the Water (Prevention and Control of Pollution) Act, 1974. The CERS has filed a petition in the Gujarat High Court against industrial units for failing to observe stipulated standards for the discharge of effluents in rivers. The polluted waters had seeped deep into the area adjoining the banks, causing the death of humans and animals and the destruction of crops. Two young men who were digging a well in the vicinity of the polluted stream died as a result of the emission of deadly gases. Although two years have elapsed, the matter has not been listed for hearing. There is hardly anything that can be done to cut short phenomenal delays in the disposal of cases by the Courts which are under pressure due to heavy backlog of work.

Emissions from motor vehicles is yet another area of great significance. Although the Motor Vehicles Act of 1988 has introduced statutory provisions to ensure that emissions do not exceed the limits fixed in the Rules framed under the law, the enforcement of standards in all states will require resourcefulness and firmness on the

¹*Pesticide Residues in Food*, 1989, published by CERS.

part of the authorities.

Several eminent persons have put forth the suggestion that the state should set up special environment courts to protect the health of people. There is much substance in this suggestion. The Directive Principles of State Policy

enjoin the state to protect and improve the environment, but it is also the fundamental duty of a citizen of India to protect and improve his/her environment. These duties could be effectively enforced through these environment courts.





Medical Ethics: Awaiting a Patients' Movement

At the outset one must bear in mind that an inquiry into the ethics, unlike into the morals, of medical practice is a thoroughly rational inquiry. Originally yes. In the modern world it is no longer so. Medical ethics is now understood as the code of conduct acceptable and normal within the medical profession. Morals, on the other hand, seem to imply acceptance of a standard outside that group or profession, in the form of a spirituality, a philosophy or a religion. This does not mean that morality or moral philosophy never influence ethics, but that ethics must be understood, analysed and practised from a rational standpoint as prevalent within the profession at a given point of time. Therefore, in this inquiry there is nothing given forever in medical practice, and yet, while practising medicine, there are acceptable ethical limits beyond which a medical professional cannot venture without inviting criticism and even punishment from the profession as such.

Similarly, a distinction must be made between the law and ethics. Although the society demands, and the profession does comply, that all ethical medical practices

ought to be legal, it is not necessary that all legal practices are ethical. For instance, if in a case of medical negligence no real harm has come to the patient, no legal action can be taken against the doctor, who cannot be prosecuted under the criminal law, and nor can one claim compensation. However, if the 'harmless' negligence involved violation of the code of ethics, the profession can take action against such a doctor. Thus, in short, ethics is something more than law, a greater law applicable to the members of the profession than a codified law applicable to all citizens of a nation.

Another term that needs clarification is 'etiquette'. This is often used along with ethics to characterise a doctor's *professional behaviour*. However, it is also used to describe conventional rules of social behaviour in general and in our Indian context, it is often, and perhaps wrongly, used to describe certain mannerisms. Thus, it is always better and less confusing to use the term 'professional behaviour' rather than the term 'etiquette' which in any case is fast disappearing from current usage in the English language.

Why Medical Ethics?

The Western world in its history of development initially consolidated four great professions: law, medicine, the ministry and university teaching. These professionalised occupations have their own internal codes of conduct. Later, many more occupations were professionalised and they too have, to a greater or lesser degree, codes of conduct for their respective members. Why do most professions and the medical profession in particular need to have a code of conduct or ethics? What is the social relevance and role of medical ethics?

The British Medical Association's Handbook of Medical Ethics, entitled *Philosophy and Practice of Medical Ethics* (London, 1988), succinctly describes the doctor's position vis-a-vis patients and other members of the society:

Doctors use technical skills and expertise which the untrained person does not possess. Possessing these skills gives him great power over his patients who by the very fact of being patients are dependent, ill and vulnerable. In caring for his patients, a doctor makes a series of judgments and decisions which patients have the right to expect are made fairly in the light of the doctor's knowledge and experience.

Thus, the relationship between the patient and the doctor is inherently unequal. How does the patient decide what is required to cure his or her malady and which doctor possesses the requisite knowledge, skills and expertise to treat that illness? If the patient finds the answer after personally experiencing the skills of a doctor, it may well be too late. That indeed was the case before the actual professionalisation of medicine took place. Earlier, medicine (which incidentally also included the nursing component) was practised by skilled artisans who were mostly informally trained by other such skilled artisans. Further, the 'scientific' knowledge base of medical practice was not adequately developed. Thus, quackery and experimentation were rampant, sometimes causing great harm to the patients. The experienced and reputed doctors were available to the elite and rulers alone, while the masses were dependent on ill-qualified doctors.

The earliest known code for regulating medical practice is that of King Hammurabi in 2000 BC, under which the Babylonian surgeon was either rewarded or punished for the results of his efforts,

depending on the outcome and the social status of the patient. Thus, if the doctor's action resulted in the loss of one eye of the patient, the doctor could be punished by the loss of his eye as well. However, the code which has shown durability and is now universally accepted in the modern allopathic medical system is the Hippocratic Oath, which was first a part of the initiation ceremony of fraternal societies practising healing arts in the ancient Greek civilisation. Indeed, the oath taken at the initiation ceremony also regulated the practise of medicine by the members of such societies. Unlike the code of Hammurabi which was a state law, the Hippocratic Oath was an internal regulatory mechanism applicable only to those members of society involved in the occupation of healing. Thus, it is not surprising that when medicine was professionalised in the 19th century, the Hippocratic tradition of internal code of conduct was adopted as a logical choice.

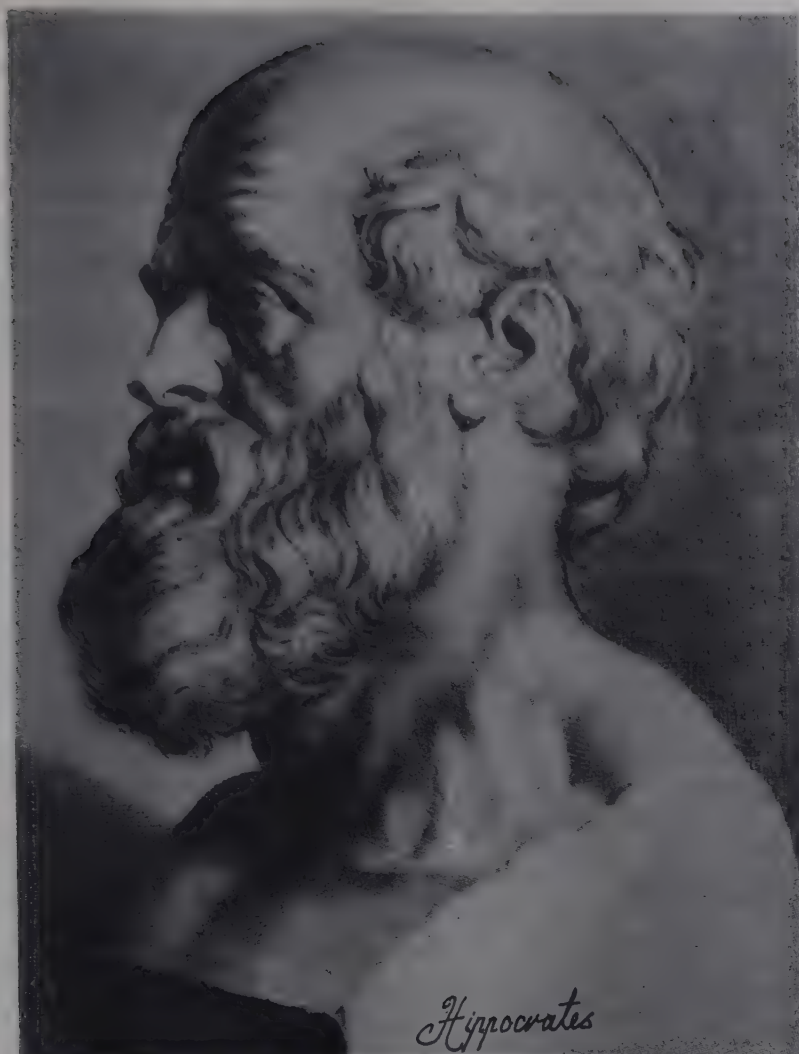
The formal recognition of professionalised medicine came in 1858 when the Medical Registration Act was passed in the UK. This recognition bestowed upon the medical profession two major rights and responsibilities. *First*, it gave the profession a virtual monopoly over medical practice. That is, only those registered under the Act were formally recognised as individuals qualified to practise medicine. Further, it gave an autonomy to the profession to decide the criteria for qualification and the

control over who could be permitted to be registered. Thus, medical education was put under the control of the representatives of the profession. This system made it possible for the people to assess who was the most skilled person to approach at the time of illness. *Second*, in order to get prompt and universal acceptance the profession highlighted its internal code of regulation. This internal code had two regulatory mechanisms. The first regulated the doctor's behaviour towards the patients so that the latter's interests were protected. The other regulated the relationship between doctors so that the unhealthy competition which could tarnish the profession's image was kept in check.

Thus, the code of ethics performs multiple functions for the profession. It keeps competition between doctors under control so that the doctor is able to practise. The doctor, in turn, is made to practise within the accepted technical standards. The patient feels safer as he or she knows that the doctor's ethics will protect his or her interests too. This, in turn, adds respectability to the benevolent image of the doctor, who indeed is looked upon as a demi-god. All these taken together



COLUMN ON WHICH WAS
INSCRIBED THE CODE
OF HAMMURABI



provide a powerful rationalisation for keeping the monopoly over medical practice with the medical profession alone, and also make it possible for the profession to ward off competition from the 'outsiders'.

The functions of supervising medical education and enforcing the code of medical ethics are performed through legally constituted medical councils.

Medical Councils

With the Medical Registration Act of 1858 was established the first medical council in the UK. It was known as the General Council of Medical Education and Registration, now popularly known as the General Medical Council. Fifty-four years later, the first medical council was established in India in Bombay, through the Bombay Medical Act of 1912. Two years later, the Madras Medical Registration and the Bengal Medical Acts were passed. Subsequently, many such medical acts were passed to cover other provinces. These provincial medical councils supervised medical education and had disciplinary powers to regulate medical professionals. In 1933, the Indian Medical Council Act was passed and the Medical Council of India was constituted in order to establish a uniform minimum standard of higher qualification in medicine for all provinces. Many of these

medical acts were replaced by newer acts after Independence, but the functions of the medical councils have remained essentially the same.

In India, the medical councils have significant representation from government officials and government-nominated individuals. For instance, in the Maharashtra Medical Council, there are two ex-officio government medical bureaucrats (the Director of Health Services and the Director of Medical Education and Research), five members nominated by the state government (one of them a non-practitioner), one member from each university in the state which has a medical faculty, elected by members of the medical faculty of the university from amongst members who are practitioners, one member elected by members of the governing body of the College of Physicians and Surgeons, Bombay, and the remaining nine members elected by postal ballot from among doctors registered with the council in the state. Thus, a majority of the council members are not directly elected by the registered medical practitioners! This is why efforts to enforce ethics in medical practice should be directed simultaneously at the profession and the government.

However, the enforcement of ethics in medical practice by the medical professionals is the sole responsibility of the state-level medical councils.

What is Medical Ethics?

There are four major principles on which the modern code of ethics ought to be based. They are: (i) the Principle of Non-maleficance; (ii) the Principle of Beneficence; (iii) the Principle of Autonomy; and (iv) the Principle of Justice.

The Principle of Non-maleficance

This principle states that one must do no harm. In other words, the doctor will never use his or her skills to injure or wrong anyone.

The Principle of Beneficence

While the principle of non-maleficance is restricted to the non-infliction of harm, the principle of beneficence calls for actions involving prevention of harm, removal of harm, and provision of benefit.

The Principle of Autonomy

This principle recognises the fact that each individual seeking a doctor's help is an autonomous agent and his or her autonomy in taking decisions during the process of medical practice must be respected by the doctor.

The Principle of Justice

This principle is a macro concept that underlines the social responsibility of the medical profession. It determines how the social burden and benefits of medicine ought to be allocated.

The actual application of these four principles is not uniform. The rules which are codified on the basis of these principles are determined by the extent of social progress made by the concerned society and the emergence of a consensus on this matter within the society and the profession, in the context of the given state of medical knowledge and skills, and the availability of economic resources at a given point in time. This is so because the doctor's capacity to provide benefit is in direct relation to the average skill and knowledge available to the profession. Further, situations can arise in which two principles might come into conflict while rendering care to the patients. For instance, take the case of a woman seeking sex determination tests to determine the sex of the foetus in her womb. In this case, she is not suffering from any disease. She is not seeking treatment but a service due to certain socio-economic and ideological compulsions. She wants to know the sex of the foetus with the definite intention of aborting it if it turns out to be female. Thus, there is here a conflict between the principle of autonomy and the principle which makes it mandatory for a doctor not to indulge in discriminatory acts. Further, within the principle of autonomy, overwhelming social evidence points to the fact that the woman's consent is based on socio-economic and ideological compulsions and thus, is *not* a voluntary consent. This ethical conflict has to be resolved by the profession by weighing various factors in a rational



manner. To us, the resolution lies in refusing to perform sex determination tests for two reasons. First, the very fact that the woman is acting under certain compulsions weakens the principle of autonomy. The informed and voluntary consent of the woman is, therefore, not certain. Second, the principle of not discriminating on the grounds of sex, caste, religion, political beliefs, etc., takes precedence over the weakened principle of autonomy.

Since the doctor knows that such a service is normally demanded in order to discriminate against the female, the doctor cannot collude in such discriminatory action. Unfortunately, the profession and its councils in India have done nothing to evolve a rule of ethics on sex determination despite the fact that such tests are rampant and that the resolution of the ethical dilemma, in this case at least, is easy from the rational standpoint. Instead, the profession is leaving this task to the government, thus undermining both its reputation and autonomy.

A brief review of the progress in medical ethics would bring out the following major points:

1. The doctor-patient relationship is a social contract. The doctor's paternalistic attitude towards the patient is no longer considered the correct approach. Today, the emphasis is on equality and on the patients' autonomy. The ethics say that patients come for help and advice, and therefore, the doctor should try to win their trust and confidence by trusting and understanding the patients' judgments about themselves. In the US, several groups including the American Hospital Association have put out a statement of patients' rights which is based on the premise that the observance of these will contribute towards more effective patient care, and that the patient himself is an integral part of the healing process (see Box 1 for an abbreviated version of this Bill of Rights)

2. The doctor is required to keep all information about the patient in strict confidence. This principle of confidentiality is broken only with the patient's consent. In certain exceptional circumstances, such as when required by law to prevent a serious risk to public health, this principle may be violated without the patient's consent. Even in such cases a rational justification for disclosure must be provided by the doctor to the patient

3. Informed consent is another area in which great progress has been made. It is now accepted that the patient must be made to *understand* various options available in the investigation and treatment of his problem and then allowed to voluntarily choose from these options. Even if the patient's choice differs from the doctor's preference, the same should be recorded but the patient's choice respected.

Thus, informed consent makes the doctor's 'paternalism' an exceptional situation and not a rule. There are six aspects related to consent:

1. The consenting individual should be a major (in the case of a minor, the parents or guardian) and should be mentally sound

2. The consent ought to be voluntary or of free will without any compulsion

3. It must be informed consent in the sense that all options must be explained with their advantages and disadvantages. The ultimate choice must be that of the patient and the doctor's role should be that of adviser

4. It has to be an intelligent consent and the same should be verified by the doctor by ascertaining that the patient has understood all the ramifications

5. The consent should be specific. It cannot be a general consent to undergo any treatment under any circumstances

6. Sometimes, the consent can be implied. But this element is controversial and may not be sustainable. Thus, it is safer to obtain an expressed or written consent

7. The doctor's relationship with the state is now more specifically defined as codes governing a doctor's relationship with prisoners, with cases of torture, etc.,

Box 1

AMERICAN HOSPITAL ASSOCIATION: A PATIENT'S BILL OF RIGHTS

The patient has the right to:

- Considerate and respectful care; complete current information concerning his diagnosis, treatment, and prognosis in terms he/she can be reasonably expected to understand. When not medically advisable to give such information to the patient, it should be made available to an appropriate person on his behalf
- Information necessary to give informed consent prior to the start of any procedure and/or treatment. Except in emergencies, such information for informed consent should include but not necessarily be limited to the specific procedure and/or treatment, the medically significant risks involved, and the probable duration of incapacitation
- Refuse treatment to the extent permitted by law and to be informed of the medical consequences of his action
- Consideration of his privacy concerning his own medical care programme
- Expect that within its capacity a hospital must make a reasonable response to the request of a patient for services. The hospital must provide evaluation, service, and/or referral as indicated by the urgency of the case. When medically permissible, the patient may be transferred to another facility only after he has received complete information and explanation concerning the needs and alternatives for such a transfer
- No catalogue of rights can guarantee for the patient the kind of treatment he has a right to expect. A hospital has many functions to perform, including the prevention and treatment of disease, the education of both health professionals and patients, and the conduct of clinical research. All these activities must be conducted with an overriding concern for the patient, and, above all, the recognition of his dignity as a human being. Success in achieving this recognition assures success in the defence of the rights of the patient

Approved by the American Hospital Association House of Delegates, 6 February 1973.

have been adopted internationally. It is now accepted that while the doctor may be employed by the state, the state has no place in the doctor's loyalty and service in his or her role as a physician. For a doctor, the welfare of the patient is of greatest importance. In any conflict between a state order and loyalty towards and welfare of the patient, the latter always takes precedence. Thus,

the doctor must refuse to participate, assist, or in any manner collaborate in any form of torture or in death penalty (see Box 2)

Box 2

RESOLUTION ON PHYSICIANS' PARTICIPATION IN CAPITAL PUNISHMENT, TORTURE AND OTHER CRUEL, INHUMAN OR DEGRADING PUNISHMENT

(a) Adopted by the 34th World Medical Assembly of the World Medical Association, Lisbon, 29 September 1981, it was resolved that it is unethical for physicians to participate in capital punishment, although this does not preclude physicians certifying death. The Secretary General said in a press release regarding the first case of capital punishment by intravenous injection of lethal drugs:

Regardless of the method of capital punishment a state imposes, no physician should be required to be an active participant. Physicians are dedicated to preserving life.

Acting as an executioner is not the practice of medicine and physician's services are not required to carry out capital punishment even if the methodology utilises pharmacologic agents or equipment that might otherwise be used in the practice of medicine.

A physician's only role would be to certify death once the state had carried out the capital punishment.

Declaration

The doctor shall not:

- * Countenance, condone or participate in the practice of torture or other forms of cruel, inhuman or degrading procedures, whatever the offence for which the victim of such procedures is suspected, accused or guilty, and whatever the victim's beliefs or motives, and all situations, including armed conflict and civil strife
- * Provide any premises, instruments, substances or knowledge to facilitate the practice of torture
- * Be present during any procedure during which torture or other forms of cruel treatment is used or threatened.

(b) Adopted by the UN General Assembly, 18 December 1981:

The World Medical Association will support and encourage the international community, the national medical associations and fellow doctors to support the doctor and his or her family in the face of threats or reprisals resulting from a refusal to condone the use of torture.

8. The doctors are expected to behave with honour and propriety towards their patients, other doctors, and the rest of society. Therefore, the doctor's primary responsibility is to his patients and other considerations are to be subordinated to this responsibility

9. The professional advice offered by a doctor to a patient must not be influenced by financial or other benefits offered to professionals by commercial organisations whose products or services are being recommended by those professionals

Medical Ethics in India

The medical profession in India is in the grip of a severe crisis in terms of medical ethics. This, in fact, is an understatement. Anyone with first-hand experience of the system of medical care in India would realise that medical ethics as described above and as encoded in a detailed 'code of medical ethics in India', are rarely followed. To begin with, there is no principle of justice. According to the 1981 Census, only 27.2 per cent of all qualified allopathic doctors are located in rural areas where over 70 per cent of the population resides. Although government statements do recognise such skewed distribution of medical manpower, the profession has shown no concern. The medical councils have devised no rules to even marginally correct the situation. Everybody is waiting for the market to change the situation, but the market is not obliging. In fact, from 1961 to 1981 (i.e., over three decades) the number of doctors located in rural areas declined! Indeed, this situation demands that the profession must take positive action, invoking the ethical principle of justice to make doctors' services available to those who have no access to them.

Although medical practice is in the hands of professionals who are supposed to follow an average standard of care as the minimum, there is no mechanism to oversee the skills or competence of doctors. This situation actually hits at the very definition of the professional. Some studies by Dr Uplekar of the Foundation for Research in Community Health of doctors in Bombay show that they have a grossly inadequate knowledge of highly prevalent diseases like tuberculosis and leprosy as well as of the standard treatment for these diseases. In fact, the technical competence of doctors is a major ethical problem of the profession in India today. Incidentally, even in a country like the UK, this problem was recognised only in the late 1970s. It is estimated that in the UK, 10 to 15 per cent of independently practicing doctors are normally incompetent. A study in Canada found 'serious deficiencies' in the medical records or nature of care of 8 per cent of the doctors studied. As a result, the General Medical Council in the UK has now devised special mechanisms to identify both competent and incompetent doctors, to upgrade the skills of the former and rehabilitate the latter. Similarly, practicing but sick doctors also form a significant proportion. For them, too, the GMC of the UK has a mechanism for identification, treatment and rehabilitation. However, in our country, the medical councils have absolutely no provision in this regard and usually wait for someone to suffer, bring a case to the council and then, in exceptional circumstances, take action against the doctor. But there is no means of rehabilitating such doctors.

In our country the doctors have shown almost complete subservience to the state. Even where there are excep-

tions to this rule, the medical profession has done nothing to protect those who defied the state to uphold medical ethics. For example, the excesses committed during the Emergency in the population control programme are well-known. But the profession has failed to ask one question: how can a doctor ethically perform sterilisations knowing well that the person's consent was given under duress? In another case, an epidemic in one of Delhi's slums was responded to by the state with a programme of mass vaccinations. The medical profession was aware that such vaccinations were not useful and perhaps even harmful during such an epidemic. But the profession chose to collude with the state's populism. It was reported that a few doctors in Delhi's hospitals did protest, but were promptly transferred. Here, too, the profession did not come forward to protect them in spite of the fact that they were upholding medical ethics.

Over 80 per cent of the doctors in our country work in the private sector. An overwhelming number are independent private practitioners. Fifty-six per cent of hospitals and 30 per cent of hospital beds are in the private sector. In spite of this there is no regulation and quality control. Even when laws are passed, they are rarely implemented. For a private practitioner, there is no limit on the number of patients to whom he or she can ethically provide medical care.

Furthermore, until recently the profession believed that the doctors in the private sector could refuse to attend to injured patients and medico-legal cases. It required a judgment from the Supreme Court that to attend to such cases was the 'total, absolute and paramount' duty of all doctors.

The organisation of medical practice has undergone profound changes. The rules of ethics provide that the consultant play a role of a specialist to whom the general practitioner or the family physician refers cases for advice, diagnosis and the line of treatment to be pursued. And this rule is one of several codified in the code of ethics in India. However, as Dr C.N. Chandrachud in his *Memoirs of an Indian Doctor* observes:

It is common for a consultant to see and examine a patient without being called in by a general practitioner. A consultant often deals directly with the patient and carries out further the job of giving injections, etc. I have known consultants who have maintained dispensaries and dispensed medicines much against the rules. Some of the consultants have almost made it a rule to ask a patient to seek consultation after a week or fortnight and tempt the patient with the offer that the fees for the next consultation would be half of what was charged for the first consultation.

Such poaching of patients, declared unethical by the profession, is now a rule rather than an exception.

Similar observations can be made on irrational medical



practices. In India, over 50,000 drug formulations are marketed by the industry. The All India Drug Action Network has declared a majority of them irrational. However, the profession recklessly continues to use such irrational combination drugs and often banned and hazardous drugs to treat patients.

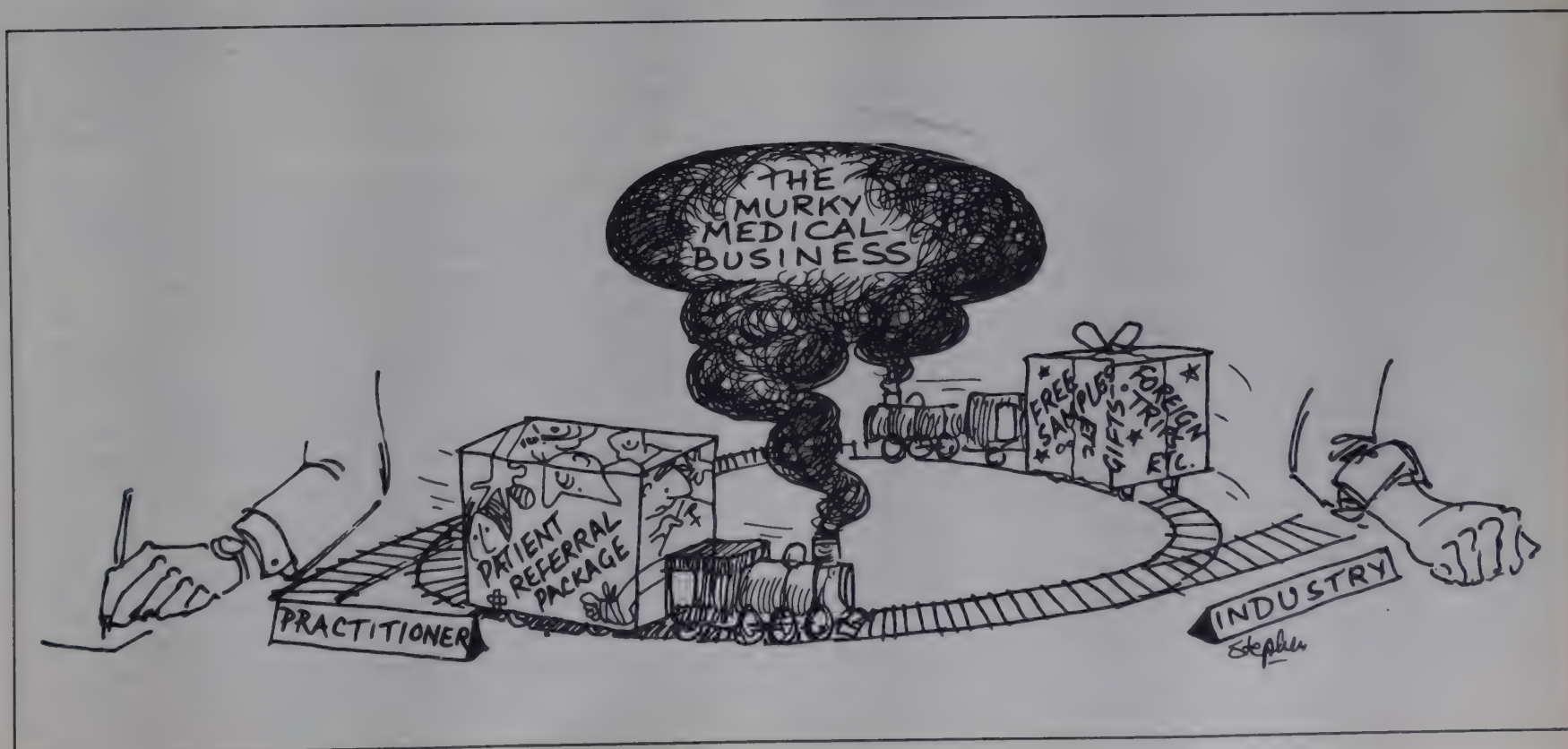
The issue of informed consent is almost non-existent in our country, so much so that there is little talk about it. Even the consent, leave alone information, is obtained in a non-specific manner before an operation and the signature is obtained on a paper stating that the patient is ready to undergo whatever is necessary and under any anaesthetic! The information component is dispensed with under the plea that in our country the majority are illiterate and cannot understand what the doctor is attempting to do! Moreover, the doctor is far too busy

to spend time explaining the nature of these investigations and the treatment to the patients.

Any discussion on medical ethics would remain incomplete without referring to the relationship between doctors and the medical industry. It is now well-known that the educator of doctors is the industry which interacts with them from the time they are in medical college. There is hardly any medical gathering which is not sponsored by the industry. This nexus is so well-established that doctors have come to be seen as sales agents of the industry.

This harsh judgment is more to describe the unethical practices rather than to cast aspersions on doctors, many of whom have refused to subordinate their profession to commerce. However, the fact remains that such an unethical relationship with the industry does exist and is becoming widespread.

The commercialisation undermining medical ethics is now well-known. Consultants taking over some functions of general practitioners is only one instance. They also try to attract patients directly without any referral from general practitioners. As a result, the general practitioners have worked out their own arrangement! In Bombay, for instance, many now charge a 'cut' from the consultants for referring patients. Such a 'cut' is also charged from the industry by doctors in the form of free samples, gifts, foreign tours, and so on. Similarly, a nexus exists between the drug stores, pathology laboratories, diagnostic centres, and doctors. That is why excessive and unnecessary investigations are carried out and drugs used on patients. This is not a 'defensive' measure by doctors to protect themselves from malpractice litigations, which is evident from the negligible number of such suits in court, but a means of augmenting their profits. All this adds to the cost of medical care in the private sector.



Further, there are very few independent practitioners who maintain complete medical records of patients treated by them. Indeed, a case paper for each patient

in general practice is now a rarity. Providing a receipt for money charged without the patient asking for it is also rare.

Box 3

TRADE OF HUMAN ORGANS

The developments in the field of health have provided succour to millions from dreaded diseases. In exceptionally severe cases, the diseased part of the body can be replaced with a healthy one. A person suffering from an incurable kidney ailment can hope for a comfortable life with a transplant, either from a caring close relative, friend, or, if one has the means, the organ can be bought in the thriving organ bazaar.

According to a report, more than 2,000 kidneys taken from live donors are being sold every year in the country with a turnover of Rs 40 crores. Other organs are also available. While live donor kidneys can be bought for Rs 30,000, a live cornea costs Rs 80,000 and skin about Rs 1,000 a patch. A skeleton is available for Rs 10,000 and a cadaver for Rs 6,000.

In India, the largest number of kidney transplants are taken from live donors not related to the patient. India was the largest exporter of skeletons, but following reports of macabre grave robberies, the government imposed strict restrictions on the export. About 5 million litres of blood are purchased from professional donors every year, and the turnover of blood banks in the country has crossed Rs 100 crores.

An intricate network of touts, donors and hospitals has evolved over the last few years and operates behind a veil of secrecy. Middlemen take the prospective donors for urine and blood tests at their own cost, keep a list of blood groups and occasionally lend money. When the deal for a kidney is struck they take a commission of anything between Rs 1,000 and Rs 5,000. Unemployed youth and people living an impoverished and indebted existence are prime targets for such a bazaar. Initially, only men sold their kidneys, but now a sizeable number of the paid donors are women.

Kidneys are vital organs needed to flush out certain harmful body wastes. While one functional kidney allows the body to function normally, the failure of both leaves the patient with two options: dialysis or a kidney transplant. There are an inadequate number of dialysis units in the country and these are quite expensive. As there is no organised collection of the organ from cadavers for transplants, most kidneys have to be obtained from live donors.

In the case of transplants of kidneys from genetically related donors, the chances of organ rejection are rare. However, immuno-suppressant drugs have increased the success rate of transplants from unrelated donors as well. For the recipient, although purchasing a kidney is as expensive as being on dialysis, there is a dramatic improvement in the quality of life. This has been the major impetus behind the commerce in kidneys.

Trade in live corneas is beginning to assume menacing proportions. As a result of the poor response of people to the cadaver programme to collect corneas, touts procure a willing donor who is admitted to the hospital under the pretext of an eye ailment and the transplant done. The success rate is supposed to be twice that of eyes taken from cadavers.

Following a storm of protest against trading in kidneys, many hospitals agreed to stop such operations and to undertake transplants only where the donor was closely related to the recipient. While this led to the hospitals breaking free of the clutches of unscrupulous touts, malpractices continue unabated in a disguised form—sometimes with the connivance of the hospitals. There are also reports of middlemen swindling

donors by giving them a pittance in exchange.

As big money is involved, ill-equipped and makeshift transplant units have sprung up in converted apartments where patients are exposed to post-operative complications and infections, including AIDS. A team of doctors, in a follow-up study of 130 West Asian patients who underwent kidney transplants in Bombay after buying the organs from living unrelated Indian donors, reported unusually high rates of mortality in patients. Their findings published in the British medical journal *Lancet* revealed that at least twenty-five of the patients died after they returned to their countries and four of them contracted AIDS. Most of them returned with totally inadequate medical reports and referral letters.

Trafficking in human organs is a cause of concern in other countries as well. However, with the World Health Organisation forced to urge its members to impose a ban on such activities, serious ethical implications in the Indian situation have emerged. With other countries clamping down on the trade, India has become an international centre for kidney transplants.

Even as the trade in body parts thrives, the medical community is increasingly being forced to question its role in promoting it. While the progress made in the medical sciences cannot be faulted for offering hope to the patients, gross commercial considerations threaten to vilify sacrosanct medical ethics. The crux of the issue is whether the doctors should perform operations when they know that the organ is being bought at a price. While most doctors acknowledge that there are pressing needs for organ transplants, they are not convinced by arguments to allow live unrelated donor transplants.

In case of transplants from cadavers, the major problem relates to the definition of death. In India, death occurs with the cessation of the heartbeat and of respiration. It is usually too late at this stage to use the organs. In other countries, the definition has shifted to the cessation of brain activity which can occur long before the person stops breathing. The patients can therefore be kept alive artificially till recipients are prepared for the transplant. Thus, the collection of organs from cadavers is much more successful abroad. But the moral dimension of such a move is debatable as there is the danger of the law being misused.

The trade in human organs has been helped by Indian laws which remain ambiguous on the subject. Criminal charges can be filed under the Indian Penal Code dealing with grievous hurt which includes the unnecessary removal of organs. But the surgeon cannot be penalised if a person willingly donates an organ ostensibly for philanthropic reasons. And not many people are forthcoming to lodge complaints or cooperate during investigations. The government is reported to be contemplating the enactment of a comprehensive legislation to regulate the trade in human organs and to prevent illegal organ transplants. The proposed legislation is expected to prohibit trafficking in human organs.

As there are buyers and sellers in the organ bazaar and policing is difficult, it is possible that the organ traders will identify loopholes in the legislation and find means to circumvent government rules and regulations. Therefore, the answer to the problem of an exploitative business of transferring the health of the poor to the rich must come from the medical community.



Organ trade is another pernicious practice in the profession. The trade in kidneys has been widely reported. Here the issue is not of organ transplantation, but the ethics of buying a kidney from an unrelated living individual who is selling it due to economic compulsions. Such practices have been reported from many well-known private hospitals but the medical councils have turned a blind eye to them. A.K. Salahudeen et al., in their study entitled *High Mortality among Recipients of Bought Living Unrelated Donor Kidneys*, *Lancet*, 22 September 1990, have shown that 130 patients from three renal units in the United Arab Emirates went to Bombay between June 1984 and May 1988 to purchase through brokers kidneys from living unrelated Indian donors for the sum of US\$ 2,600 to 3,300. There was a significantly high mortality rate by the end of one year after transplantations. This shows that not only is Bombay becoming a centre for kidney trade, but that even in the prestigious private hospitals this unethical conduct is being performed under such deplorable conditions that the mortality rate is so high. Indeed, the unethical practice helps doctors to increase their incomes but normally does not benefit the patient. In fact, since ethics are primarily to protect patients, their violation is bound to harm them both economically and financially.

Commercialisation breeds unhealthy competition as also unethical advertisements. As new specialisations and new technologies are introduced, those who invest their money in them make all attempts to utilise them to the fullest. The code of ethics does not prohibit institutions, hospitals, nursing homes and diagnostic centres from advertising their services. But it does clearly forbid doctors from doing so. However, even doctors have indirectly and, to a lesser extent, directly started advertising their own skills. This is done in many ways: by printing advertisements in the newspapers about their professional visits to certain areas, by distributing handbills to people's homes through the newspapers, and

more obviously, by giving interviews in the media about their specialised skills, particularly if the work is in the area of providing 'services' like sex determination tests, cosmetic surgery, etc., and finally, by giving the institution the same name as that of the doctor running it.

In our country the list of unethical practices cannot be exhaustive simply because one has to depend more on observation rather than hard scientific facts. This must be emphasised because there is hardly any substantial research in the ethics of medical practice in India. However, all ethical doctors are aware that there is something terribly

wrong in the profession, though very few of them will be ready to acknowledge it publicly. Many are afraid they might be branded as traitors by their colleagues.

Although commercialisation has undermined ethics, it has also created conditions for initiating a battle against unethical practices. It has done this by fast uncovering the garb of nobility that surrounds the profession. People are now beginning to realise that doctors are not 'gods', they are expressing their dissatisfaction with the care they receive, thus setting the ground for a patients' movement demanding ethical and quality care that is moderately priced. That is why the past decade has seen more litigations against malpractices than ever before and more cases are being brought to medical councils for disciplinary action. However, this is still only a drop in the ocean. During the course of our work through the Medico Friends Circle (Bombay group) in helping victims of medical malpractice, we encountered many cases of unethical practices. Ten such instances are cited as examples.

Case One

A leading cancer specialist in a reputed private hospital in Bombay advised an elderly patient to undergo surgery, despite the fact that a reputed cancer specialist from the USA had advised the patient not to undergo surgery of the abdomen as the cancer had spread extensively. Nevertheless, the surgery was conducted, by the said specialist's assistant. Although he himself was in the adjoining theatre, he did not even look in on the patient being operated. When complications developed after surgery, the specialist refused to accept that the hapless woman was his case and did not visit her even once. She suffered and ultimately died. But her husband received a bill of Rs 5,000 as the operation charges of the said specialist from the hospital.

In this case, the doctor insisted on surgery in spite of protests from the patient's husband. He did not perform it himself but the hospital charged a fee on his behalf. He disowned the patient completely and did nothing to take care of her. On all these counts, his behaviour was ethically questionable.

Case Two

A patient was admitted in a private hospital for heart bypass surgery. The patient wanted the best specialist in the field, who was identified and contacted. He accepted the case and agreed to perform the surgery. However, for two days there was no news of his whereabouts, although the patient was kept ready for surgery, and on one occasion even taken to the operation theatre. Another doctor informed the patient's relatives that the specialist was not satisfied with the official fee to be paid through the hospital. They were advised to meet him personally. When they met him in his private consulting room he demanded Rs 30,000 in cash. After some protest, the desperate relatives agreed to pay and the operation was fixed for the following day. The patient was once again prepared for the operation but once again the specialist failed to arrive. The patient died of a heart attack later the same day.

Case Three

A 14-year old child was admitted to a hospital for heart surgery. The doctor operated on him and inserted an artificial heart valve. However, his diagnosis was wrong. The child was in fact suffering from some other disease of the heart, and died on the operation table. To conceal the fact that the case had been wrongly diagnosed, the doctor made the pathologist change the histopathology report of the heart. It was also found that he had charged almost 50 per cent extra as the price of the valve purchased by him.

Case Four

A woman suffering from bronchial asthma visited an ophthalmologist for some complaint. The doctor recommended eye drops which when administered produced a reaction. Fortunately, the woman survived as prompt care was made available. As the problem with her eyes continued, she visited the doctor again and after two months the same eye drops were prescribed by him, although he was aware of the consequences the time before. This time the reaction killed her.

Case Five

An elderly woman approached a specialist for the problem of kidney stones. The doctor advised her to opt for stone crushing by the lithocrite machine method if she

could afford it, and since it was an alternative to surgery, the woman agreed. The doctor used the machine himself although he did not have the requisite training. The patient was sent home and the doctor left the city without appointing anyone to take follow-up care of the patient. The woman developed fever and was ultimately admitted to the intensive care unit in a serious condition. The first scan report suggested pus formation in the abdomen. But the doctor preferred to wait and ask other specialists to give their opinion. After several days, the patient's worried relatives felt compelled to call in a surgeon who was a family friend. He was surprised to see that such a serious case of peritonitis had not been operated upon sooner. Two days after his visit, the operation was performed and the patient kept in the intensive care unit. Two days later the patient died. At the time of her death, the ICU's monitoring system was not functioning and the private nurse appointed was asleep in the next room. The patient was discovered dead by a ward boy who in turn informed the patient's husband who was outside the ICU.

Case Six

A very obese woman in her early 40s was advised a hysterectomy in a charitable hospital. A gynaecologist attached to the hospital persuaded the woman to have the operation in her own private nursing home. The nursing home was ill-equipped to operate on such high-risk obese women. During the operation, the relatives were suddenly asked to produce two bottles of blood immediately. Unable to comply at such short notice, they lost the patient.

Case Seven

An elderly woman was operated upon for heart bypass surgery. A day after the operation she suffered a myocardial infarction but this was not disclosed to the patient or her relatives. Ten days later she was discharged and asked to exercise regularly to recover from the operation. This she did despite the intense discomfort it caused. Within a fortnight she developed pains in the chest. When she visited the doctors they made her wait for several hours and when she was finally examined it was by the doctors' assistants. It was when she died that the husband discovered that the doctors had concealed the true state of her health from him and did not tell him that in fact the bypass operation had not been successful.

Case Eight

In a casualty unit of a public hospital, the police brought in a young man who had been arrested on stealing charges and kept in jail. The doctor found injuries on both extremities, and blackening of the skin

of both wrists and thighs. All four limbs were tender, swollen, and one arm had a wound as well as an abrasion measuring 3 inches. He complained of pain in the abdomen, vomited several times, and his blood pressure was high (150/100). While the doctor talked to the patient and examined him, a policeman was present all the time. He was given a Sulpha drug and analgesic tablets, and returned to the custody of the police. Five days later he was suddenly released by the police in a very serious state of ill-health. He was taken to another public hospital by a relative where he died the next day. In this case the doctor was responsible for not allowing a free relationship between the doctor and patient to develop. With the police present at all times, the patient could not tell the doctor that he had been tortured. Further, despite the nature of the injuries, suggesting systematic infliction by a blunt object, the doctor failed to diagnose or even suspect torture. Finally, the doctor did not even regard high blood pressure and severe vomiting as sufficient causes for hospitalisation. He returned the patient to more torture and eventually death.

Case Nine

In a tribal area in Maharashtra, we encountered a PHC doctor who enticed the tribals with toddy and country liquor as incentive to undergo sterilisation. This was also done by the paramedical staff to meet their targets.

Case Ten

Certain non-medical friends happened to be present at a PHC in Maharashtra when a case of organophosphorous poisoning was brought to the doctor. It was a case of attempted suicide. One of the two doctors on duty wanted to treat the patient as the injections were available at the PHC. However, the senior doctor refused as it was a medico-legal case. The patient was taken back untreated and died a few hours later.

Conclusion

These cases have been cited not to show the extent of unethical practices but to illustrate the nature of such practices in the medical profession. From our experience in helping victims of medical malpractice, for each case reported there are numerous others which go unreported. This is because only a very small minority of those who suffer realise that they have been victims of unethical practices and negligence. And of those who do, only a small number find the courage and time to report. And of those who do report, only a few decide to take action against the doctors with the medical councils and the courts. Further, most of the cases which are reported are those in which the patients have either suffered great harm or have died. Closer monitoring of medical practice by doctors in India would reveal findings that would not only shock the world but cause the medical profession to hang its head in shame.

Lack of space does not permit a reproduction of the Indian code of medical ethics. Suffice it to say that it is an extensive document covering every aspect discussed in this paper—and much more. It includes a declaration which is given to each applicant at the time of registration, and which asks of the applicants to pledge to consecrate their lives to the service of humanity. The code covers certain general principles, duties of physicians towards patients, towards fellow physicians, their duties as consultants and their responsibilities in case of breach of ethics, their duties towards the general public, and finally, the disciplinary action to which they themselves can be subjected. Unfortunately, it appears this document remains on paper alone. It is time that the code of ethics is taken seriously, both by the professionals and the patients. The profession seems to be in the grip of commercial interests to such an extent that there is little hope of it carrying out reforms on its own. Only a powerful patients' movement could be expected to uphold ethics and press for reforms within the profession.





Disability

Introduction

One walks down the streets of some of India's largest cities—Delhi, Bombay, Calcutta, Madras—one hardly ever encounters a disabled person. The few that are seen are often reduced to begging on the roads. It is hard then to believe, according to the World Health Organisation's (WHO) estimate, that 10 per cent of the Indian population is disabled. Where are these 80 million people, and how do they live?

The invisibility of disabled people is coupled with the fact that until recently, disability was not an issue of great concern with either thinkers, politicians, or human rights groups. This, despite the fact that disabled persons, along with their families, are not a minority group; while 10 per cent of the population is disabled, another 40 per cent constitutes their families who are deeply affected, both socially and economically.

We have now reached a stage where certain facts about the state of disabled people in our country can only be termed tragic. The tragic fact is that over 70 per cent of disabilities are preventable. And of those disabled, only 0.2 per cent have access to rehabilitative services. Furthermore, while 80 per cent of the disabled popula-

tion lives in the rural areas, the services are mainly urban, and even these are negligible. Only 2 per cent of the rural and 5 per cent of the urban disabled population have access to services.

To date, there has been no country-wide survey of the magnitude of disability in India. The only large-scale survey was conducted in 1981 by the National Sample Survey, and even today most studies tend to quote these figures. This survey, however, did not include the mentally retarded. Apart from this survey, researchers tend to extrapolate information on the magnitude of disability from a few existing spot studies.

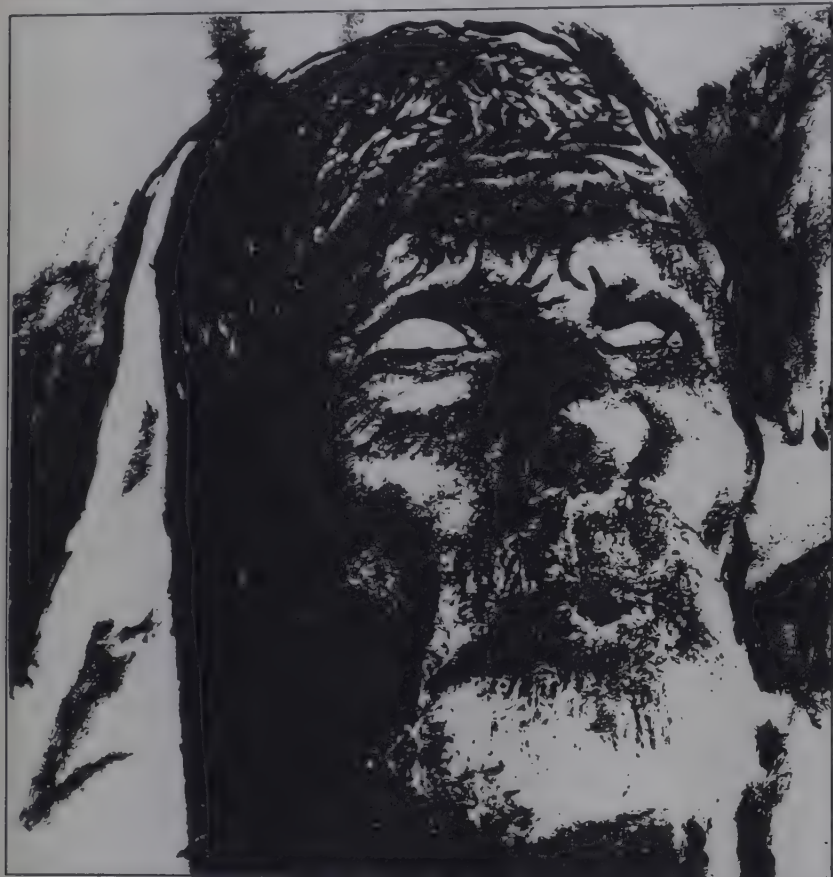
However, since 1981, which was also the International Year for the Disabled, policy-makers and others have begun to comprehend that disability is a major and basic problem in our country. Concepts of rehabilitation are changing and many voluntary organisations are involved in this area of work.

Since the problem of disability is such a large and complex one, this paper does not aim to provide a comprehensive overview. Rather, it is an attempt to highlight some of the important areas that need attention.

Visual Handicap

Blindness includes many different types of visual impairment and does not always mean that a person cannot see at all. It also includes people who cannot count fingers at a distance of 3 metres, and those whose field of vision is limited to a mere 20 degrees or less.

India has the largest number of blind people in the world; the latest estimate by the National Society for the Prevention of Blindness (NSPB) puts the figure at 12 million people. India also has the rather dubious distinction of having the largest number of potentially blind people in the world.



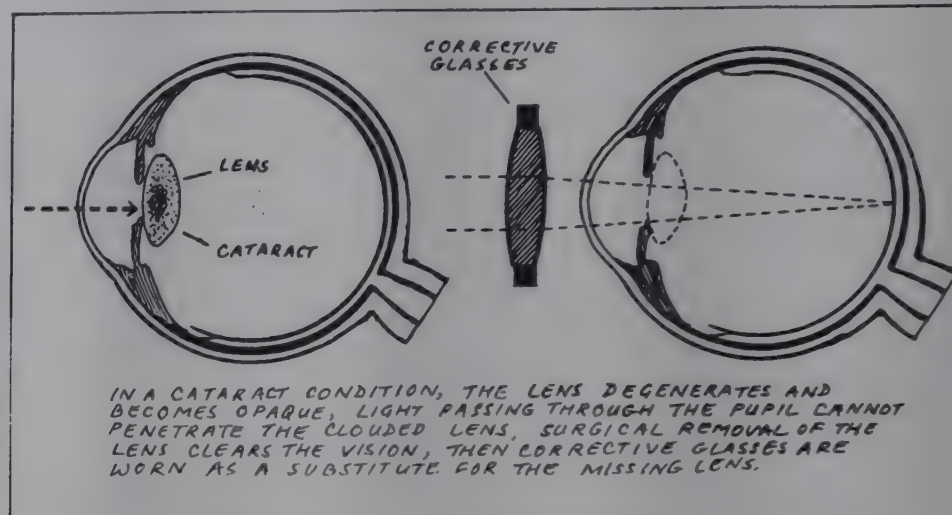
In 1963, the WHO and the Indian Ministry of Health estimated that 1 per cent of the country's population was visually disabled. Ten years later, the Indian Council of Medical Research (ICMR) in its survey on blindness (1971-74), increased the figure to 1.4 per cent blind people in India. In absolute numbers, there were then 9 million blind people in the country. In 1981-84, a WHO and NSPB survey on the prevention of blindness estimated that 1.49 per cent of the population, or 12 million people in India, were blind.

These estimates, though not nation-wide surveys, reveal an increase of almost 50 per cent in the number of blind people in India, which is shocking and tragic in view of the fact that, as already mentioned, over 70 per cent of blindness in India is preventable or curable.

Blindness in India primarily afflicts the aged. More than 70 per cent of blind people belong to the 60 plus age group. Cataract and glaucoma, both diseases that strike after the age of 40, are the major causes of blindness. In the preschool age group, vitamin A deficiency is a major cause of blindness.

Cataract

Cataract is the single largest cause of blindness in India and accounts for 81 per cent of blindness. India ranks second in the world, next only to China, in the number of cataract cases per year. Cataracts are caused by metabolic changes which occur after the age of 40 and lead to a slow loss of vision over the years. Although not preventable, cataracts are certainly curable. Simple surgery can remove a cataract and restore an individual's eyesight. Recently, the implantation of an intraocular lens at the time of surgery has also gained popularity.



1. However, rehabilitation programmes in India do not seem to have taken off as the incidence of cataract is on the increase. While cataract accounted for 55 per cent of visual impairment in 1971-74, it now accounts for 81 per cent of blindness in the country
2. This, in effect, means that three-fourths of blind people in India can be cured and can begin to see again, but because of the lack of services and political will, they might die blind. And this, despite the fact that the treatment of cataract has been the major thrust of the National Programme on Blindness, and the principal concern of voluntary agencies and the private sector

But there are many impediments that need to be considered. First, over 70 per cent of the blind people in India live in the rural areas. Thus, rehabilitation in terms of surgery and after-care must reach them in time. At the moment, there are about 20,000 ophthalmic beds and only 6,000 ophthalmic surgeons in the entire country, most of them located in towns and cities.

There are about 22 million operable cataract cases in India. Given the incidence of cataract, which is 2 million per year, and a natural attrition (24.10 per 1,000 per year) for the age group of 40 and above, the number of operable cataracts by the year AD 2000 would be 35.27 million. With the present level of infrastructure, operations on such a massive scale are an almost impossible task. The Government of India has been setting yearly targets for operations for the last nine years, but each year the number of operations falls short of the target.

The average number of operations performed each year is about 1.2 million; reflecting that by the year 2000 the incidence of blindness is estimated to reach 1.35 per cent of the population, rather than 0.3 per cent as envisaged by the National Health Policy.

Table 1

Year	Target (in lakhs)	Achievement (in lakhs)
1981-82		5.50
82-83	13.03	9.04
83-84	12.34	10.069
84-85	12.78	11.34
85-86	13.84	12.18
86-87	13.83	12.08
87-88	12.37	11.93
88-89	12.35	11.93

Source: D.N. Chaudhery (1989).

While targets are set with alacrity, it is obvious that little thought is given to the fact that we also need comparable infrastructure as well for the control and prevention of blindness. It is important to note here that about 70 per cent of the cataract operations performed thus far have been organised and performed by voluntary organisations (Chaudhery 1989). The role of the government has been limited to financial assistance alone, and even in this sphere, the allocation for the last two plan periods has been less than expected. The programme received only 16 crores in 1982-85 and 31 crores in 1985-90, as against 59 and 138 crores, respectively, which was the recommended budget provision of the Working Group on the Control of Blindness, 1982. Little wonder then that the incidence of blindness went up from 1.4 per cent to 1.49 per cent during this period.

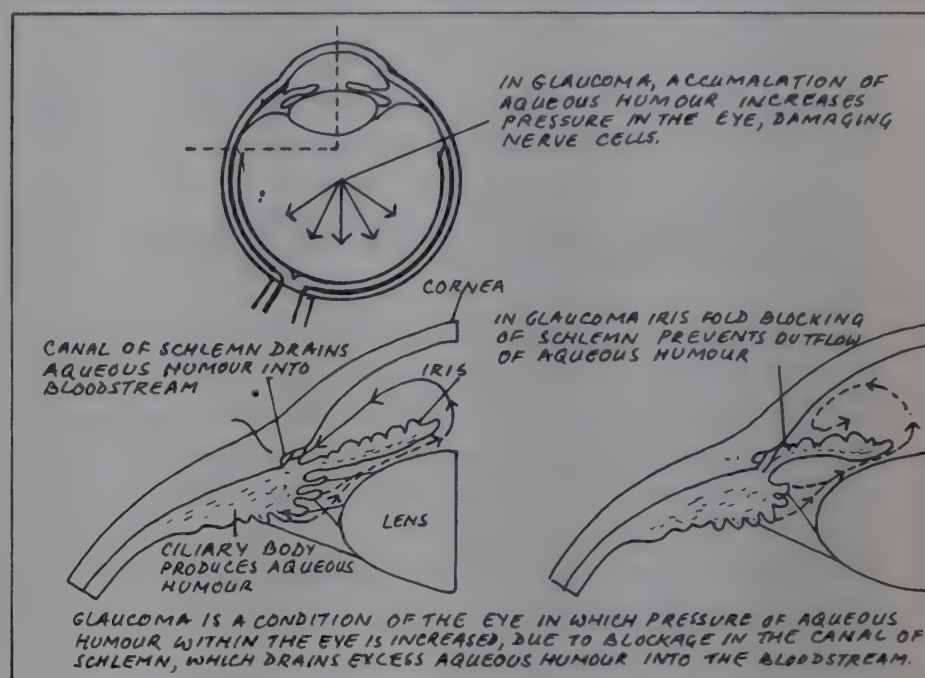
Eye camps have been the primary means of reaching such large numbers of people, and it is at these camps that the majority of cataract operations have been and are being performed. Although camps may be the only answer at the moment, they are certainly not the best method, as follow-up is hardly ever possible.

To make up for its laxness, the government now plans an intensive programme of cataract eradication during the Eighth Plan. The target for these five years is 84 lakh operations. The government (as well as many other organisations and governments all over the world) is experimenting with creating cataract-free zones in the country. The aim is to take up a small, well-defined geographical area with a population of 2 to 3 lakhs and work systematically in a time-bound manner towards the eradication of the problem of cataract, with the involvement of the local administration, voluntary organisations and the local health authorities. Work has already started in Datia district in Madhya Pradesh and Madurai district in Tamil Nadu. In Latin America too, the Hellen Keller International has been working since 1986 to establish cataract-free zones to provide cataract surgery to poor people in Peru and Brazil. There are plans to extend these

zones to Bolivia, Chile, Ecuador, Mexico, Uruguay and Venezuela as well.

Glaucoma

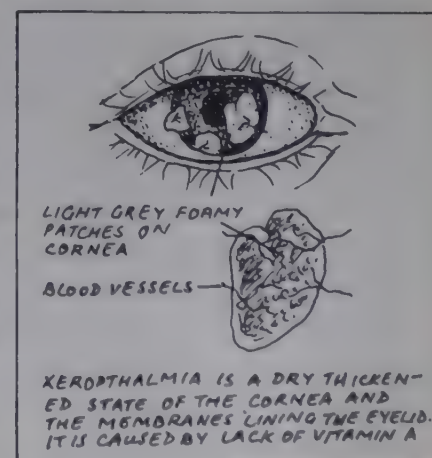
Like cataract, glaucoma is also a disease that afflicts the 40 plus age group and again, like cataract, the incidence of glaucoma has also increased over the period 1971-74 to 1981-86. Where once it accounted for 0.5 per cent blindness, it now accounts for 2 per cent. Although not totally curable, the onset of blindness due to glaucoma can be arrested with medication if detected in the early stages. One of the major problems in the early



detection and treatment of glaucoma is that people are often not aware of the problem and consult a doctor when it is too late. Early detection of glaucoma then becomes an integral part of any programme for the control of blindness. Unfortunately, however, not much has been done in this area.

Vitamin A Deficiency

Vitamin A deficiency or xerophthalmia is still a major cause of blindness among children, accounting for 0.04 per cent of blindness. In actual numbers, about 14,000 to 15,000 children go blind each year due to vitamin A deficiency. While this is a small number compared to countries like Bangladesh where about 30,000 children go blind every year due to vitamin A deficiency, it is still a deplorably high figure in view of the fact that it is preventable. Nutritional



blindness has been the main focus of the preventive measures in the centrally-sponsored Maternal and Child Health Programme since the early 1970s. This programme provides a six-monthly dose of two lakh international units of vitamin A in liquid or capsule form to children in the age group 1 to 5 years. This is administered through *anganwadis* and MCH workers like ANMs and LHVs (Chaudhery 1989).

Infections

While blindness due to trachoma, an infectious disease, has reduced dramatically from 5 per cent in 1971 to just 0.2 per cent in 1981-86, other infections caused by unhygienic conditions accounted for 15 per cent of blindness in the country in 1971. Some of the other causes of blindness include injuries and systemic diseases like VD, diabetes, hypertension, TB and leprosy.

Orthopaedic Handicap

Orthopaedically handicapped persons are those whose physical capacity is impaired by the loss, deformity or paralysis of one or more limbs. They are victims of diseases or injuries which when cured leave behind a disability which is permanent and lifelong. The Association of the Physically Handicapped elaborates this definition as 'persons who have defects which cause deformity or interfere with the normal functions of bones, muscles or joints.'

The term physically handicapped thus includes people who are orthopaedically disabled due to:

- Infectious diseases like polio and leprosy
- Childhood conditions like cerebral palsy, muscular dystrophy, spina bifida
- Victims of accidents at home, on the roads, and at the workplace

There is, therefore, a very diverse group of conditions which leads to physical disabilities.

Poliomyelitis

Poliomyelitis is the single largest cause of orthopaedic disabilities in India and a major cause of lameness among children. According to the 1981 National Sample Survey, locomotor disability constitutes 92.72 per cent of all physical disabilities in the 0 to 4 age group, excluding speech and hearing. Polio accounts for more than 40 per cent of these disabilities.

Studies confirm that poliomyelitis is primarily a preschool disease that strikes the 0 to 5 age group. As it is an infectious disease, it is prevalent in its virulent form at certain times of the year. While in the northern

region polio affects children during the months April to August/September, the virus is particularly active from January to May in the south. Since the polio virus is transmitted through the respiratory or faecal oral route, unhygienic and unsanitary environmental conditions, as also a poor socio-economic background, are intimately related to its prevalence.

While polio has been recognised as a major cause of disability in our country, there are varying estimates of its incidence. While the Government of India claims that the incidence of polio is declining, newspaper reports and hospital-based studies confirm the contrary.

According to a Ministry of Welfare publication (Sokhey 1990a), 'the incidence of poliomyelitis has



declined from more than 32,000 cases reported in 1981 to less than 14,000 in 1989.' However, the document hastens to add, the reporting of cases is far from complete and districts with low and moderate coverage and poor surveillance levels have been excluded. One hundred and fifty districts in the country reported less than twenty cases of poliomyelitis in 1989, reads the publication. The states of Himachal Pradesh, Karnataka, Punjab and Tamil Nadu have shown a significant declining trend in this disease. This is coupled with the fact that the overall immunisation coverage in the country with the doses of OPV to children below the age of 12 months increased from less than 50 per cent in 1986 to about 75 per cent in 1989 (Sokhey 1990b).

The Other Side of the Picture

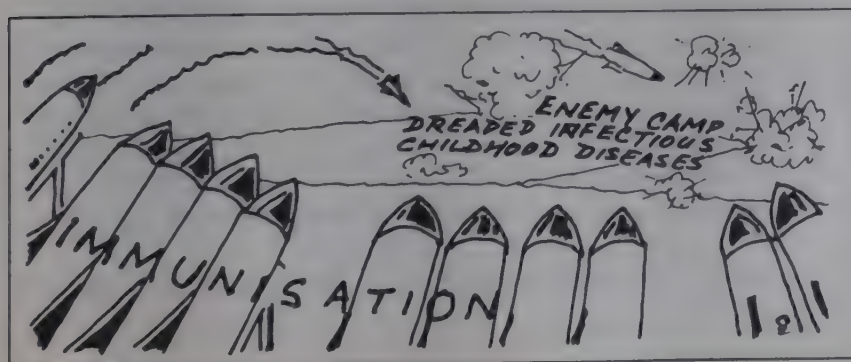
'Every year, an estimated 200,000 to 300,000 children are affected (by polio), which means that 700 children every day or one child every two minutes is paralysed by this disease.... There has been a rising trend of poliomyelitis over the last twenty-six years. It has increased from 8 to 28 per 10,000 for epidemic years and 4 to 16 per 10,000 for non-epidemic years.'

This is quoted from the October 1988 issue of the *Newsletter* of the LSS Paediatric Hospital and Research Centre at Kota, Rajasthan. Another, more recent article on the immunisation programme also quotes similar figures for the incidence of polio in the country. In fact, according to this estimate, about 5 lakh children are afflicted by polio each year.

While the truth probably lies somewhere between the two and while increased immunisation coverage may have contributed to a significant decline in the incidence of poliomyelitis, it can safely be said that the government figures are a gross underestimate. One is then forced to conclude that either there are several districts with poor and moderate immunisation coverage, or that the system of surveillance and reporting leaves a lot to be desired.

Immunisation

- Immunisation is the weapon with which the war against polio and five other dreaded infectious childhood diseases is to be fought. But has our immunisation programme really succeeded?



- The Universal Immunisation Programme (UIP) was launched in 1975, and polio was included in 1979. The target was set at 85 per cent coverage by 1990. This has not yet been met

Indeed, for the biggestcrippler of Indian children, preventive vaccines are still imported from other countries. Although a viral vaccine manufacturing plant is being set up in Gurgaon under an Indo-French agreement, this plant will manufacture the controversial injectible polio vaccine rather than the oral vaccine that is now administered.

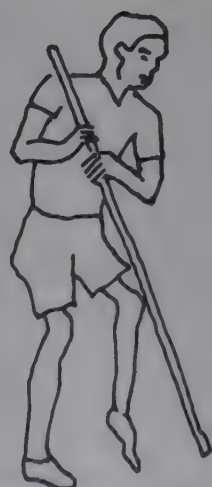
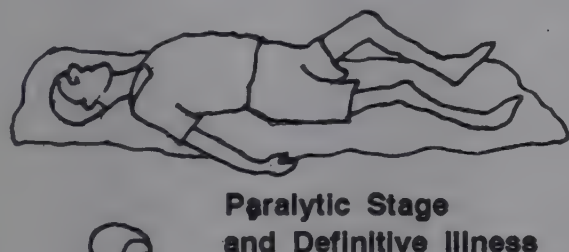
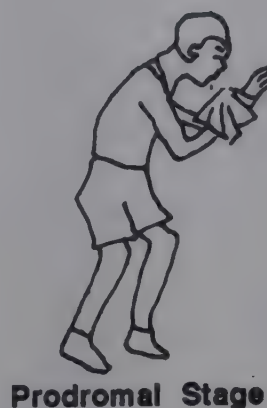
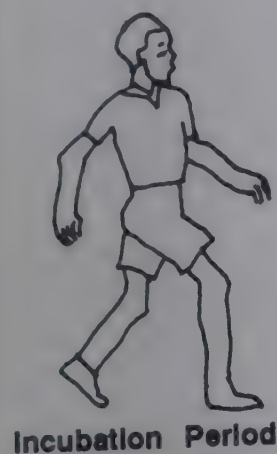
The immunisation programme is confronted with several problems, the major one being maintenance of the cold chain. For the polio vaccine to be potent it has to be kept and maintained at a temperature of 2 to 3 degrees Celsius. This is a major problem, specially since the vaccine has to be transported long distances and passes through many hands before it finally reaches the user. The report of the National Review of Immunisation (NRI), 1989, refers to the shocking instances of health workers carrying vaccines in thermocole boxes and even plastic bags from one place to another. Vaccines were often stored in earthen pots without any ice. 'During transit, many a time either due to delay/cancellation of flights or delay in receipt of information about dispatch of vaccines, a number of days elapse between the date of dispatch and actual receipt of the vaccine. Many airports at the holding or consignee's end have no cold storage facility' (NRI 1989). About 30 to 40 per cent of the vaccines are rendered useless because of the breakdown in the cold chain and other problems. The NRI thus found that 30 per cent of the children vaccinated with three doses of OPV contract polio.

In another study conducted in Greater Bombay (1982-87) on children with polio, it was found that 40 per cent of the children who contracted poliomyelitis had already received the vaccine while 23 per cent had been partially immunised with three or more doses of the vaccine (*Indian Express*, 22 August 1988). Disease surveillance was another component of the programme examined during the review. 'By and large the surveillance system was found to be poor in most states even through the sentinel centres. Problems related to record maintenance, insufficient attention to investigation of reported diseases or outbreaks are common in many states.'

Survey on Lameness

During the National Review of Immunisation a survey on the incidence of lameness due to polio was conducted. Thirty-five districts in eighteen major states and eight units of four metropolitan cities were surveyed. A total of 4,23,201 children below 5 years were enlisted and surveyed.

The NATURAL COURSE of UNTREATED PARALYTIC POLIOMYELITIS



'Poliomyelitis still remains the prime cause of lameness in childhood', was the salient finding of the survey. According to the results of the survey, the prevalence rate of polio is 4.5 per 1,000 children in the age group 0 to 5 years. The incidence rate of polio is 0.90 per 1,000, and the proportion of lameness is 66.37 per cent.

There was a wide variation in the prevalence of lameness due to paralytic polio in the various districts chosen. While the prevalent rate of lameness in districts like Dibrugarh, North Goa, Simla, Pune and one unit of Bombay and Madras was less than 1 per 1,000 due to paralytic polio, in as many as fifteen districts the prevalent rate of lameness due to polio was found to be more than 5 per 1,000. The proportion of lameness due to paralytic polio to the incidence of lameness in a district also ranged from 13.3 per cent in Pune to 100 per cent in Bhiwani. In Hissar and West Nimar, 90 per cent of lameness in children was due to polio, while in thirty-eight other districts it rallied a close 40 to 80 per cent. In only two districts did polio account for less than 30 per cent of lameness in children.

Box 1

POLIO—A VILLAGE SCENARIO

When polio strikes a child in the rural areas, the villager accepts the situation with a degree of equanimity which is quite remarkable. He has learnt to do this because he has seen that there is no other option. If the child has been mildly or moderately afflicted he or she gradually learns to get up and move, limping but nevertheless mobile. He is accepted by society; he does not wear the special stigma of the disabled; and he finds a place within his own social setting. He is that unusual category which the WHO may have difficulty classifying. He has a physical *impairment* and a *disability* but he is socially not ostracised as *handicapped*. He develops his own techniques to be mobile in a fairly efficient way. For those who are severely afflicted, of course, their only cushion is the Indian family as an institution. The family does what we now expect the Social Welfare Ministry to do.

The well-intentioned modern medicine specialist now enters the arena. He accuses the parents of neglect and offers them hope that something can be done for the child. 'Take him to Jaipur', he says, and after considerable persuasion, the child is brought to a major urban hospital and is prescribed a caliper. But there is a long waiting list—six months on average—and the child is asked to return after several months to take delivery of his calipers. The parents, who come with such hope and expectation, are crestfallen; they go back, often never to return. At Jaipur are stocked a graveyard of calipers which were never collected by the patients. Lack of information about polio leads to neglect. Deformities are allowed to develop because parents have never been told about their prevention. Ninety per cent of the surgical operations which I am required to perform on polio victims are essentially to strengthen deformed limbs: deformities which ought not to have been allowed to develop.

Source: Dr P. K. Sethi, *Appliances in Poliomyelitis: A Personal Viewpoint*.

Injuries and Disability

Disabling injuries have become a major health hazard in our country. These injuries may be caused by accidents on the road, at home, and at work, be it agriculture or industry, an organised or unorganised work setting. A large number of these injuries lead to orthopaedic and other handicaps. In fact, injuries are the single largest cause of amputations in India. Nearly a quarter of all amputations (24.3 per cent) in urban areas are due to injuries, and in the rural areas, 18.6 per cent of all amputations are the result of injuries (Mohan 1983).

The World Health Organisation has estimated that 78 million people are injured in the world each year, India alone claiming a share of 12 million injuries per year. Injuries are among the five main causes of death in most Southeast Asian countries.

For every death there are at least ten to twenty or more serious injuries, many of them leading to disabilities. And yet, injuries have not been recognised as a public health hazard, as a problem to be dealt with. There is never a public outcry when thousands of people die or are disabled, or when injuries are reported on festivals like Diwali. Such causes of disabilities as poor maternal and child health, lack of immunisation, and poor socio-economic conditions have been dealt with at length. But the area of injuries leading to disabilities is hardly ever seen as a problem, and is therefore not documented.

1. The World Health Organisation and other concerned individuals now argue that injuries are not isolated accidents caused by the negligence of the people involved. An 'injury is a disease that results from acute exposure of the body to physical and chemical agents. There are no basic distinctions between injury and disease. If we saw injuries as a disease and not just an isolated occurrence, we would be able to tackle them better'
2. In India, for persons above the age of 4 years, injuries are responsible for at least four times as many years of life lost as those owing to cancer
3. No official records are maintained of disabilities resulting from injuries. There are no official records of deaths in the agricultural sector, let alone injuries, despite the fact that 60 per cent of our population is involved in agriculture. Child labour, which accounts for 6 to 7 per cent of the labour force, is not even officially recognised. Where then is the question of keeping any records?
4. The Ministry of Labour and Industry collects accident statistics of only those industries and organisations covered under the Factories Act. This leaves out the large unorganised sector of work. While records are maintained of deaths on the roads, there are no records of those disabled on the roads. It is from meagre resources and a few spot studies by inde-

pendent researchers and concerned individuals that the extent of disabling injuries can be assessed

Road Accidents

'It is not known how many people get disabled every year due to crashes on the roads. But we do know that for every death, there can be ten to twenty or more serious injuries. Twenty thousand people were reported killed on the roads in India in 1980—it is possible that about 200,000 to 400,000 people are seriously injured and a fair proportion permanently disabled' (Mohan 1983).

In 1986, India had the fourth highest rate of accidents in the world. The death rate due to these accidents was equally high, 57 per 10,000 vehicles, a death rate higher than in developed countries like the USA, UK and Australia, where there are not only more vehicles on the roads but higher speeds as well. It is also higher than some developing countries like Oman, Tanzania, Saudi Arabia and Libya, where conditions are no different from ours.



This reflects the state of our roads and the lack of safety consciousness amongst us. And, once again, it is the less affluent sections of our society which are victims of disability or death—those on motorcycles, cycles, or on foot.

A hospital-based study of road injuries in Delhi has shown that people on such vehicles are vulnerable since they have no structures to protect them. Thus, they can sustain serious injuries in crashes of very low velocity as well. This study was conducted at the Emergency Unit of the All India Institute of Medical Sciences, Delhi. All road accident victims and those accompanying them to report to the Emergency Ward of AIIMS from 1 January 1987 to 30 April 1988 were examined and interviewed. Crash and injury related data was recorded on forms specially designed for the study. The data revealed that of the 807 cases recorded, 50 per cent had orthopaedic injuries, 32 per cent had face injuries, while 31 per cent had head injuries. Fourteen per cent of the cases had upper extremity injuries. Orthopaedic surgeons were consulted in 32 per cent of the cases and neurosurgeons in 20 per cent. A significant number of those injured must have become disabled, given the nature of vehicles involved in the accidents. Motorised two-wheelers accounted for 312 of the cases, pedestrians for 208 and cyclists for 96 of the cases.

Household Injuries

While it is largely men who are disabled in road accidents, it is women and children who are vulnerable to accidents at home. Once again, there are no detailed official figures of deaths and disabilities resulting from injuries sustained in the home. Data for America in 1977 puts the figures at 124 injuries per 1,000 man years and sixteen disabling injuries per 1,000 man years. According to D. Mohan, 'the injury rate in India appears to be at least comparable to that in the US if not higher.'

Falls and burns seem to be the major causes of injuries within the home. Bad housing design, staircases without railings, and windows without guards are some of the reasons why falls leading to injury and often disability and death are so common. Burns also account for a large number of injuries and the kitchen is regarded as the most unsafe place in the home. Many accidents caused by the use of pressure stoves have been reported. These stoves work on the principle of compressed gas and can explode if they are faulty. A WHO paper (1989) warns that sub-standard consumer items are becoming a major cause of accidents and injuries in developing countries. Yet, people are consuming more of such items as chemicals and unsafe electrical appliances.

The festival of Diwali is unfortunately a time when burn accidents reach epidemic proportions. While burns account for 3.3 per cent of all the amputations in the rural areas, 3.6 per cent of all amputations are due to burns in the urban areas. Fireworks have also been known to cause injuries to the eyes, leading to visual impairment and often blindness.

Box 2

FESTIVALS OF SORROW?



Diwali and Holi, two major festivals in India, are developing into macabre festivals of injuries, unknown by the vast majority of people who continue to use unsafe fireworks and colour, who continue to indulge in drunken driving, all in the name of festivities.

A five-year long study (1983-88) of burn injuries during Diwali, conducted in the LNJP hospital and other major hospitals in Delhi, Bombay, Pune and Rohtak, confirms that 'firework-related burns occur in epidemic proportions on Diwali night.' The authors estimate that about 120,000 persons are burned or injured every Diwali night in India. 'The total number reporting to hospitals and clinics would be in tens of thousands and deaths may number in the hundreds' (Mohan and Varghese 1989). Of the 599 city cases, 85 per cent had burn injuries, 8 per cent had lacerated wounds and 7 per cent had eye injuries.

Conical fountains were found to be a major cause of burns (59 per cent), as also of lacerated hands. Designed to be easily held in the hand while being lit, they often explode in the hand.

Another study was conducted by Mohan et al. (1987) to determine the extent of injuries sustained during the festival of Holi. The study was conducted on patients reporting to hospitals in Delhi on Holi in two consecutive years—March 1985 and March 1986. One hundred and seven cases of Holi-related injuries were reported. Of these, a majority (56 per cent) were under the influence of alcohol and *bhang*.

Twenty-eight persons were injured in falls; many of them fell off roofs, down staircases and on wet floors. All these resulted in serious injuries, including skeletal fractures. Forty-eight persons (45 per cent) suffered head injuries, sustained mainly in clashes or in friendly scuffles. Twenty-two persons (21 per cent) sustained skeletal fractures and ten persons (9 per cent) suffered stab wounds.

These are figures from just a few hospitals in the country but indicate the types of injuries and disabilities that can occur on festivals which are supposed to signify happiness and harmony.

Occupational Injuries

'The more industrialised (a nation), the more occupational injuries workers are likely to suffer. This is a common myth. Workers in developing countries are more likely to be injured, injuries are more likely to be disabling and rehabilitation services more likely to be unavailable' (Mohan 1987).

This is because production is often decentralised into smaller units where effective control is not possible. There are several studies of occupational injuries in mines, agriculture and industry which clearly indicate that injuries at the workplace are a serious problem.

Agricultural Injuries

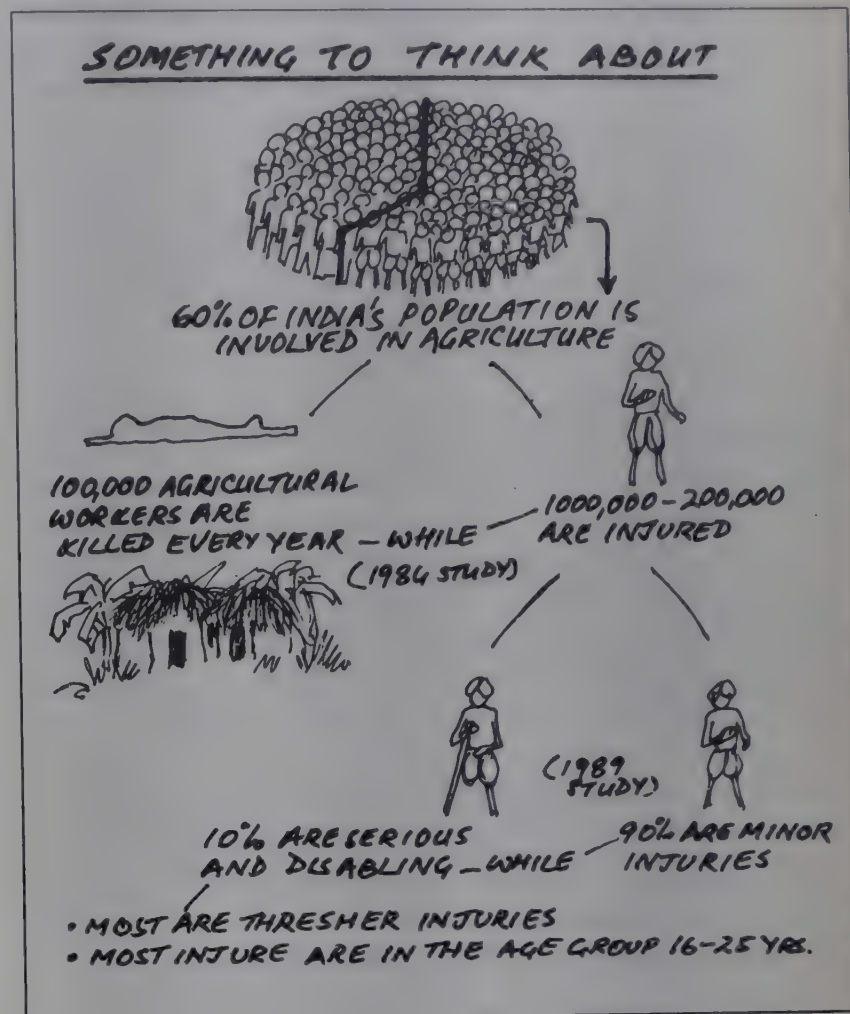
Over 60 per cent of India's population is involved in agriculture. Many agricultural implements are now known to be hazardous. The increasing mechanisation of agriculture has not been commensurate with increasing consciousness about safety or with the availability and use of machines of better quality. Instead, what we have is an ever-increasing litany of injuries in the agricultural sector. Once again, no records are maintained of deaths or disability in this sector.

Sporadically, newspaper headlines scream of thresher accidents. Public consciousness is stirred, boils, then simmers and goes cold again. Meanwhile, accidents and injuries continue unabated. Based on a study of injuries in rural Punjab by Gordon and colleagues, Dinesh Mohan (1984) estimates that about 100,000 agricultural workers are killed and about 1,000,000 to 2,000,000 are injured every year.

An epidemiological study of agricultural injuries in the villages of Haryana (Mohan et al. 1989) shows that the largest number of injuries are caused by machine entanglements. While about 90 per cent of these may be minor injuries, those that involve the chaff-cutter and the thresher tend to be serious and disabling. The most frequent and severe injuries involve the chaff-cutter because the machine is used almost every day by rural inhabitants who own cattle. This is also one machine that is operated primarily by women. Thresher injuries are usually sustained seasonally.

A survey conducted in rural Punjab by Verma et al. (1976) provides significant qualitative data on the nature of thresher injuries. This survey was conducted in twelve districts of Punjab during the wheat threshing season of 1976. It was found that the largest number of people affected by thresher accidents were in the 16 to 25 age group. 'The maximum number of accidents occurred on drummy threshers (45.16 per cent), followed by the syndicator thresher (37.41 per cent), regular beater type thresher (14.19 per cent), threshers with beaters and seed (1.94 per cent), and the spike tooth cylinder type machine (1.29 per cent).' None of the accidents was reported to

have taken place on the threshers equipped with a bulk feed hopper. Analysis of the nature of injuries sustained by the victims showed that the right hand was cut in 65.99 per cent cases, the left hand in 17.35 per cent cases, fingers were cut in 8.16 per cent cases, both hands were cut in 4.08 per cent cases, multiple injuries were sustained in 2.72 per cent cases, and one or both legs were cut in 1.7 per cent cases.



Newspaper and magazine reports point to the fact that the threshers in use are made by small-scale industries least concerned about the safety requirements of the machines. Big companies, on the other hand, cannot compete with smaller manufacturers who charge half the price for a thresher. In October 1981, the Supreme Court ordered that no person by himself or acting on behalf of others could manufacture, store or sell a power thresher without adequate safety devices (*Delhi Recorder*, June 1982). However, in the big centres of production like Ballabgarh and Palwal, machines continue to be manufactured and sold.

It is ironical that while the introduction of power threshers has been hailed as one of the most significant events in Indian farming, whereby a machine has replaced the endless drudgery of man and animals and raised their productivity, it has also caused the most gruesome injuries and deaths on a very large scale.

The tendency once again is to blame the victims for their carelessness, drunkenness and ignorance, rather than the unsafe aspects of the machine. Is disability then the price we pay for development?

Hearing Disability

A hearing disability is regarded as the most traumatic of all disabilities since it is not physically apparent. For this very reason it is also one of the most difficult to detect. There are varying estimates of the extent of hearing disability in India. According to the 1981 National Sample Survey, there are 31.10 lakh hearing impaired persons in the country. This survey did not include children in the age group 0 to 4 years because of the difficulty in detecting hearing impairments in young infants. The Ali Yaver Jung National Institute for the Hearing Handicapped, Bombay, puts the figure at 3.02 million hearing impaired people in the country. This figure presumably includes children in the 0 to 4 age group as well.

The document of the Working Group on India's National Plan for the Control and Prevention of Hearing Impairment and Deafness, however, estimates 'that 76.07 million people are suffering from hearing impairment and approximately 38 million are suffering from deafness and can be cured by proper surgical intervention.' There are 21.54 million children suffering from hearing impairment in the country, whose loss of hearing is mostly due to inadequate health care or lack of knowledge about ear care. It has been estimated that 8.15 million of the hearing impaired are school children who suffer from such a disability as a result of unhygienic living conditions. Such varying estimates, all of them from government bodies or working groups set up by the government, are both disturbing and confusing, and at present, we appear to have little idea about the magnitude of this problem in our country.

Conductive Deafness

Existing information on hearing disability confirms that it is curable. Conductive deafness occurs when the outer or middle ear does not conduct enough sound to the inner ear. This may be due to blockage of the ear canal by congenital malformation, wax or foreign objects, congenital abnormalities of the middle ear bones, injury or disease. About 35 per cent of the hearing impaired suffer from conductive hearing loss. These are international figures on which we have to depend as no studies on the extent of conductive hearing loss appear to have been conducted in India. However, conductive hearing loss does not generally affect auditory skills such as hearing range, sound discrimination and localising of sound, if proper and timely medication or surgical intervention is sought. Failing this, permanent deafness can result. Particularly in children, the most common cause of conductive hearing impairment is middle ear infection.

Neurosensory Deafness

One in every thousand persons in India is profoundly deaf or has neurosensory deafness. This is not a curable condition, and needs specialised attention. Neurosensory deafness is due to the defects in the inner ear or the seventh nerve. The degree of hearing loss depends on the extent of damage to the inner ear. The most probable cause of inner ear impairment is the absence of some or all of the fine structures in the cochlea which do not heal or regenerate with any amount of medication or with surgery.

Linked to this is the fact that about 40 per cent of all hearing impairment has genetic causes. According to Dr Prem Victor, Head of the ENT Department of St. Stephens Hospital, Delhi, consanguinity is one major factor, although no studies have thus far been conducted in India to confirm this. Intra-uterine infections such as measles, mumps and influenza during the first trimester of pregnancy are also likely to cause the birth of children with neurosensory deafness. Other conditions such as diabetes, tuberculosis, toxemias of pregnancy, and above all, poor maternal health, can all lead to the birth of children with hearing impairment.

In early childhood, diseases such as measles, influenza and meningitis can lead to deafness, hence the importance of immunisation. The Working Group Report points out that unattended upper respiratory infections is one of the major causes of deafness in our country. The findings of the National Sample Survey of 1981 are similar. Ear discharge and illness were found to be the primary causes of disability among the hearing impaired. The incidence rates for ear discharge leading to hearing impairment were 174 per 100,000 in the rural areas and 137 in the urban areas. Hearing impairment due to illness was 215 for the rural and 246 for the urban areas. Untreated, these conditions are likely to shift from the category of impairment to that of disability.

In terms of services for the hearing impaired, the focus definitely needs to be on the younger age group. Compared to visual disability, for example, the incidence of deafness in this age group is much higher.



Table 2

Prevalence Rates per 100,000 Persons (1981 NSS Report)

	Age group			
	5-14	15-39	40-59	60 and above
<i>Rural</i>				
Hearing	314	518	614	2628
Visual	66	117	585	5863
<i>Urban</i>				
Hearing	244	208	434	2366
Visual	87	117	385	4156

Source: A Summary of the Report on the Survey of Disabled Persons, Government of India, Ministry of Social Welfare, no date (b).

This fact is further corroborated by another study which shows that of the disabled population in the age group 5 to 14 years, for whom education is necessary, those with speech and hearing defects constitute 50 per cent, those with locomotor disabilities 45 per cent, and those with visual disabilities only 5 per cent.

This is linked to another fact. The prevalence rates of congenital hearing disabilities are 30 per cent and 28 per cent in the rural and urban areas respectively, while for visual handicap they are 5 per cent and 8 per cent, respectively. The need for early detection, diagnosis and rehabilitation of the hearing impaired in the 0 to 14 age group thus acquires great urgency. Apart from medicines and perhaps surgery in the case of conductive hearing loss, a hearing impaired child will need the services of an audiologist and a speech therapist. In many cases, he will need to get the correct hearing aids.

Early intervention becomes important because a child normally learns to speak between the ages of 2 and 4. If hearing impairment is not detected, and a child is not trained at that early age, he is likely to develop a language of gestures rather than learn to speak. This can hinder his development both socially and in terms of his vocation. Unfortunately, most ENT departments tend to diagnose deafness between the ages of 5 and 7 years, thus losing valuable time.

According to the 1981 National Sample Survey, 82.05 per cent of the hearing impaired live in rural areas, while only 17.95 per cent live in the urban areas. It is imperative then that services reach those in the rural areas. The Working Group document, however, points out that 'at present there are hardly any facilities available in the rural talukas and even district hospitals for diagnosis and treatment. About 300 ENT specialists and 100 other workers are being trained every year in various medical colleges and district hospitals. This is woefully inadequate.' In the case of ear surgery, including micro surgery, the document estimates that about 100,000 are being performed annually at about 100 medical colleges, district hospitals, ENT hospitals and camps.

Box 3

THE CORRECT AIDS

When a child wears a hearing aid for the first time, he or she takes a step—from the world of silence to the world of sound. This is a major event; one that can make all the difference between a communicative and a non-communicative child. For this very reason, the selection of the right hearing aid is of the utmost importance. The child has to be tested for the type and extent of hearing loss, and only then can a hearing aid be selected and prescribed. But in India, the selection and purchase of hearing aids is often like purchasing a consumer item from the store (Oza, no date). Camps are often held in the country and thousands of hearing aids are distributed. But a large number of the hearing aids are not correct for the recipient. Children may not wear their aids for this reason and often parents complain that when they do wear them they are afflicted by ear aches and headaches. Sometimes, the wrong choice of a hearing aid can do more damage to the ear. For example, the wrong hearing aid—one which gives the wrong degree of amplification—on a child with progressive sensory neural loss may cause acoustic trauma and thus accelerate hearing deterioration in the aided ear.

The wrong aid is of no benefit, and the right one may not fit. Oza reports that 'the majority of children and adults in India have ill-fitting ear moulds, not only resulting in feedback, but also in the distortion of the auditory signal. Even the best hearing aids imported from abroad prove least helpful if ear moulds are not made properly to fit the ears.' Also, ear moulds are at present made of acrylic, a substance rejected by both the young and the aged because it is too hard. The time involved in fabricating an acrylic ear mould is also very long. The manufacture of the hearing aid itself has come under attack in India. Professionals working in the area allege that all hearing aid manufacturers do not perform the required tests for a hearing aid. The frequency response curves are not made available even on request.

Furthermore, the majority of the manufacturers do not give the percentage of distortion in their different models, thus making it difficult for teachers and parents to communicate with and teach their children. Merely wearing a hearing aid is not enough. The child has to learn to distinguish between all the sounds he or she hears and must be trained to use the hearing aid.

Another prohibitive factor in acquiring a hearing aid is its price and the cost of maintenance, particularly the cost of batteries. Aids are made by private manufacturers who often import a large number of the components.

The Government of India has a scheme whereby free aids are given to people with a monthly pay of less than Rs 1,200. Those with an income of Rs 2,500 per month can buy the aids at 50 per cent of the price.

Keeping in view the prohibitive cost of changing batteries, the All India Institute of Speech and Hearing, Mysore, is experimenting with the use of solar energy to charge nickel cadmium batteries. The use of nickel cadmium batteries would be more economical than using ordinary batteries if recharging facilities are easily available. The cost has been established to be Rs 250. It has been found that when a hearing aid is fitted in children under the age of 6 months, a large number of non-nucleic cases may regain hearing considerably. The first three years in the life of a deaf child are valuable. It is during this time that he or she is exposed to language and only those children with proper hearing aids have a chance of being integrated into a regular school among children without any disability.

The National Plan of Action for the Prevention of Hearing Impairment and Control of Deafness aims at strengthening services at the peripheral, intermediate and central levels. In order to reach the remotest corners of the country, 125 mobile units are to be set up. These units will once again use the camp method to reach the maximum number of people. Realising that this is not the best method, the plan then seeks to phase out the mobile units in eight years, when it envisages that a more permanent structure will be developed.

At the intermediate level the *tehsil* or sub-divisional hospitals are to be equipped for the delivery of ear care services. The central sector will be utilised to develop manpower for various purposes.

Mental Retardation

The mentally retarded in India are the most neglected among the handicapped. Mental retardation, or mental handicap as it is now termed, is characterised by impaired intellectual functioning and a slow rate of maturation, both physical and psychological. The World Health Organisation in its ninth *Manual of International Statistical Classification of Diseases, Injuries and Causes of Death* described mental retardation as 'a condition of arrested or incomplete development of the mind which is specially characterised by subnormality of intelligence.'

There is no country-wide survey on the incidence of mental retardation in India. Even the 1981 National Sample Survey failed to include the incidence of mental retardation. Therefore, we have to rely on international statistics which put the figure at 2 per cent of the population. In actual numbers this translates to about 16 million people.

Mentally handicapped persons may be classified on the basis of their intelligence quotient (IQ). Individuals with less than an IQ of 70 are usually classified as mentally retarded. But even among the retarded there are classifications which are very important in terms of the rehabilitation of people with mental retardation. Those with an IQ of 50 to 70 are termed mildly retarded. Such people can master simple academic and occupational skills. Nearly 75 per cent of India's mentally handicapped children are only mildly retarded.

About 20 per cent of mentally handicapped children are moderately retarded, with an IQ ranging between 35 and 50. Such children can achieve partial independence in self-care, can learn acceptable behaviour, and can be economically useful within the family by taking on sheltered employment. About 20 to 30 per 1,000 of the mentally handicapped population of India is mildly to moderately retarded, with 2 to 3 per 1,000 being severely retarded. Those with severe (IQ 20 to 30) and profound retardation (IQ 14 to 20 and below) require constant supervision and custodial care for the duration of their lives.

There are several causes of mental retardation. Poor maternal health, maternal and foetal infections such as rubella and toxemias of pregnancy can lead to the birth of a retarded child. Excessive intake of drugs by the mother during pregnancy can also result in the birth of a mentally handicapped child.

Iodine deficiency during pregnancy and the lack of iodine in diets is another major and important cause of mental retardation. It can also occur due to faulty

Box 4

IODINE DEFICIENCY

The lack of a mere 150 micrograms (1,00,000 micrograms = 1 gram) of iodine a day can cause such serious disabilities as mental retardation and goitre. The average lifetime requirement of iodine for an individual can fit into a pinhead. But it has to be taken regularly, and this is not the case with a large number of people in India.

Iodine deficiency disorders threaten one billion people in China, India, Indonesia, Africa and Latin America, and result in mental retardation, developmental disabilities and lack of energy. This deficiency is easily avoidable through the use of iodised salt, water or oil (*International Rehabilitation Review*, vol XLI, no. 2, October 1990).

It is now known that one out of every five persons in India lives in an identified iodine deficient area and is at risk of being affected by iodine deficiency disorders.

Iodised salt is the most common means of fulfilling an individual's iodine requirement. Iodised salt consumed daily offers complete protection against all iodine deficiency disorders, at an annual cost per person that is less than the price of a cup of tea (Government of India, nd (c)).

But not all salt is iodised in India, and this is mainly due to the lack of political will. For this reason, several states have been declared goitre endemic. The great sub-Himalayan belt that extends from Jammu and Kashmir all along north India to the northeast, covering an area of 2,500 sq km, is the region afflicted most severely with iodine deficiency. Disorders due to iodine deficiency have also been reported from Maharashtra, Gujarat, Madhya Pradesh, Andhra Pradesh, Orissa, Karnataka, Kerala, Tamil Nadu, and even Delhi. In fact, no state in India is free from iodine deficiency disorders and new pockets are being discovered every day.

The mentally handicapped person in India suffers all the more because of the social stigma attached to such a condition. Misunderstood as being 'mad', the mentally handicapped are often objects of ridicule. In law, as in other fields, the distinction between mental illness and mental retardation was not made until quite recently (see Box 5), and the lay person is still unsure of what mental retardation really means.

The Government of India too has been lax in providing services for the mentally handicapped, and there is no national policy for the prevention of mental retardation and the rehabilitation of mentally retarded people. In January 1988, a draft policy was framed and the prevention of retardation, creation of public awareness, and access to education, employment and rehabilitation were the priority areas identified. The draft policy also appealed for the creation of a National Trust to administer any property or money that the mentally retarded person might possess. This has been a long-standing demand of the parents of the mentally handicapped, whose main concern is the welfare of their children after their death. This Trust is proposed to be set up during the Eighth Plan.

delivery methods which lead to birth trauma, birth asphyxia, and bacterial and parasitic infections of the central nervous system. In children, diseases like encephalitis and meningitis can also cause retardation. It has been noted that social and cultural deprivation, coupled with malnutrition, can also lead to mental retardation.

Box 5

MENTAL RETARDATION AND THE LAW

That the mentally retarded have been the most misunderstood and neglected group is evident from the fact that until as recently as 1987, the law clubbed them with the mentally ill. The law itself was retrogressive, dating back to 1912.

Under the Indian Lunacy Act, 1912, a lunatic was defined as 'an idiot, or a person of unsound mind.' Thus, both the mentally ill person and the mentally retarded person were regarded as 'lunatics'!

While the new Mental Health Law of 1987 makes a distinction between the mentally ill and the mentally retarded, it goes a step further and throws the retarded out of its ambit. The distinction is valid but no alternative law has been framed for the care of the mentally retarded. And, 'even though the Mental Health Act is not applicable to the mentally handicapped, since the ill and the handicapped have been treated similarly for so many decades, any factual difference will take place only if an alternative legal, administrative and therapeutic regime for the mentally handicapped is created' (Dhanda 1991).

For years, parents and professionals concerned about the mentally retarded have been articulating the need for a separate legal code because the many laws that are applicable to them do not really display an understanding of their condition and are therefore liable to misuse.

Although the Mental Health Act of 1987 has been passed it has not yet come into force. The Indian Lunacy Act of 1912 still holds sway. Under this Act, a 'lunatic' can be institutionalised in a mental hospital under certain conditions, that is, the mentally retarded person can be put into a mental hospital with other mentally ill people. Indeed, investigations at the Mental Hospital in Shahadra have shown that mentally retarded people have been banished there for a lifetime and been administered electro-convulsive therapy with no improvement in their condition (Dhanda 1990).

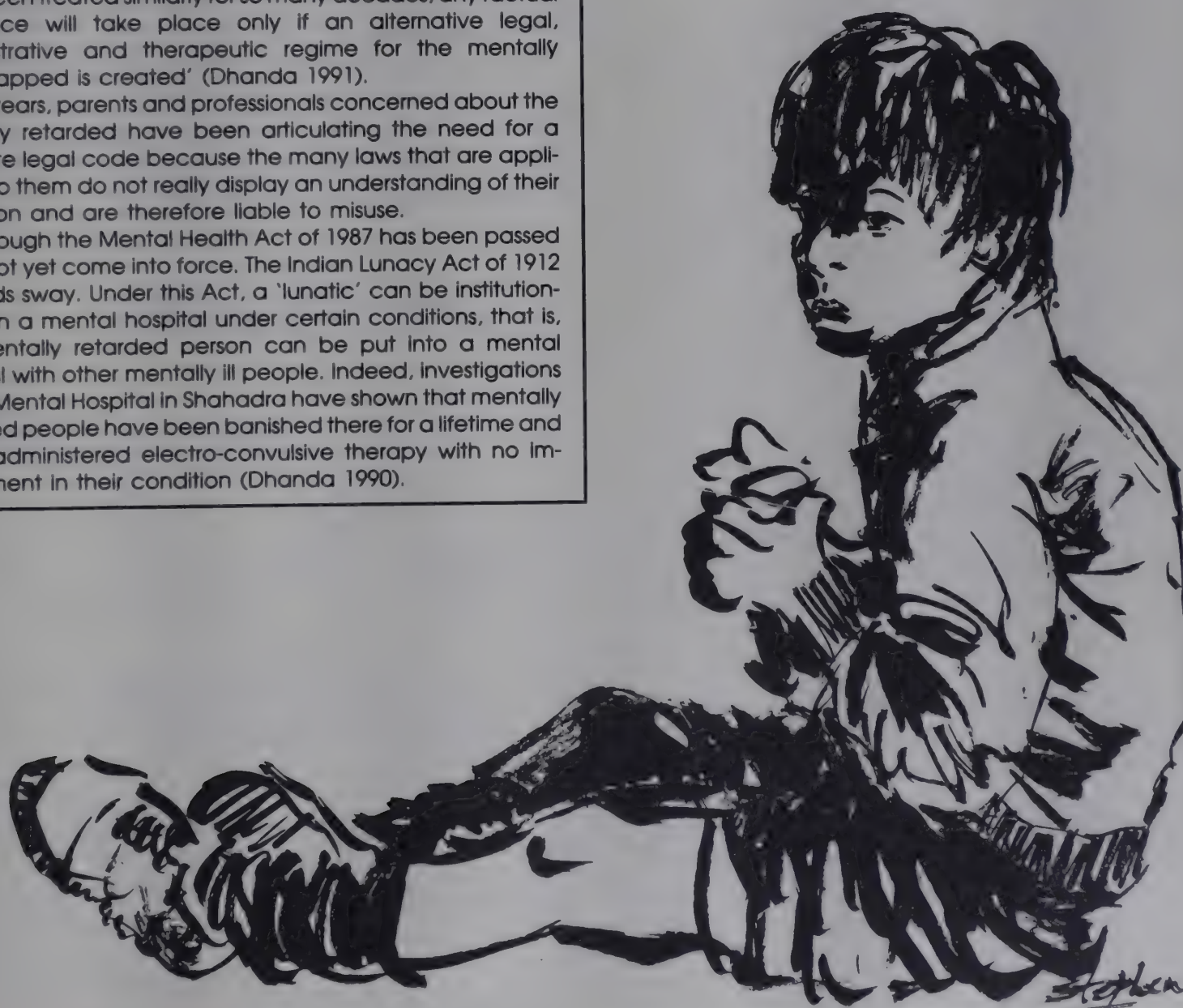
Box 6

DEFENCE OF INSANITY

Under Section 84 of the Indian Penal Code, 1860, a person cannot be convicted of an offence if she/he is of unsound mind or unable to understand the nature of the act. While the mentally retarded may make a plea on these grounds, they cannot be acquitted and discharged. This is so because acquitted insane persons are kept in safe custody for long periods before they are released, as this is believed to be the cure for mentally ill persons. But a mentally retarded person can never be cured!

Sections 328 to 330 of the Code of Criminal Procedure, 1973, also lay down that when an accused, due to unsoundness of mind, is unable to understand the nature and consequences of a criminal trial, it should be postponed and resumed only when the accused is in a fit state of mind. Till then, he is to be kept in custody or released on bail. Once again, with a mentally retarded person the question of resuming a 'fit state of mind' does not arise, and the mentally retarded are thus likely to be kept in custody for an extended period of time (Dhanda 1991).

In terms of ownership of property too, while a mentally retarded person can own property, he cannot enter into a contract to own the same. While he can be bequeathed money and property, he cannot administer it.



Rehabilitation

Till the late 1950s and 1960s, the rehabilitation of disabled persons the world over meant either their institutionalisation in special institutions, or the physical management of their disability.

However, the 1970s saw a shift in focus: from an institutionalised to a community-based approach, and the concept of rehabilitation itself became more holistic, including the social, vocational and psychological rehabilitation of a disabled person. The philosophy behind community-based rehabilitation (CBR), as the new approach is called, is to integrate disabled people into the mainstream of society rather than create special environments for them. The involvement of the family and the community are an integral part of this concept. Rehabilitation has to be accessible, affordable and appropriate. The emphasis is now on providing low-cost, functional, and culturally acceptable technology rather than sophisticated technology and equipment.

While the concept of CBR is gaining popularity in India, there are as yet few such projects. Services for the disabled remain institution-based and mainly in the urban areas, even though the majority of the disabled population lives in the rural areas.

In the recent past, several voluntary agencies working in the area of rehabilitation of the disabled have been created. There are now over a thousand such agencies in the country. While they were earlier dependent on grants from charitable and philanthropic organisations and individuals, today they are entitled to money from the government for many programmes. While only about 400 such organisations actually receive the finances, many of them are actively collaborating with the government and carrying out their programmes.

Here too, the urban bias is evident. According to the *Directory of Organisations Working for the Welfare of the Handicapped* (published by the Institute for Physically Handicapped, New Delhi), about 80 per cent of these organisations are located in eight states and one Union Territory—Andhra Pradesh, Gujarat, Karnataka, Kerala, Maharashtra, Tamil Nadu, Uttar Pradesh, West Bengal and Delhi. States such as Bihar, Uttar Pradesh and Orissa have less than two centres for a population of 1 lakh disabled persons.

Physical Management of Disabilities

The physical rehabilitation of the disabled includes their training in the use of appropriate aids and appliances. The right aid or appliance can empower the disabled person, by enabling him/her to perform tasks that are not otherwise possible. The right artificial leg for an amputee, the right calipers for a child afflicted with

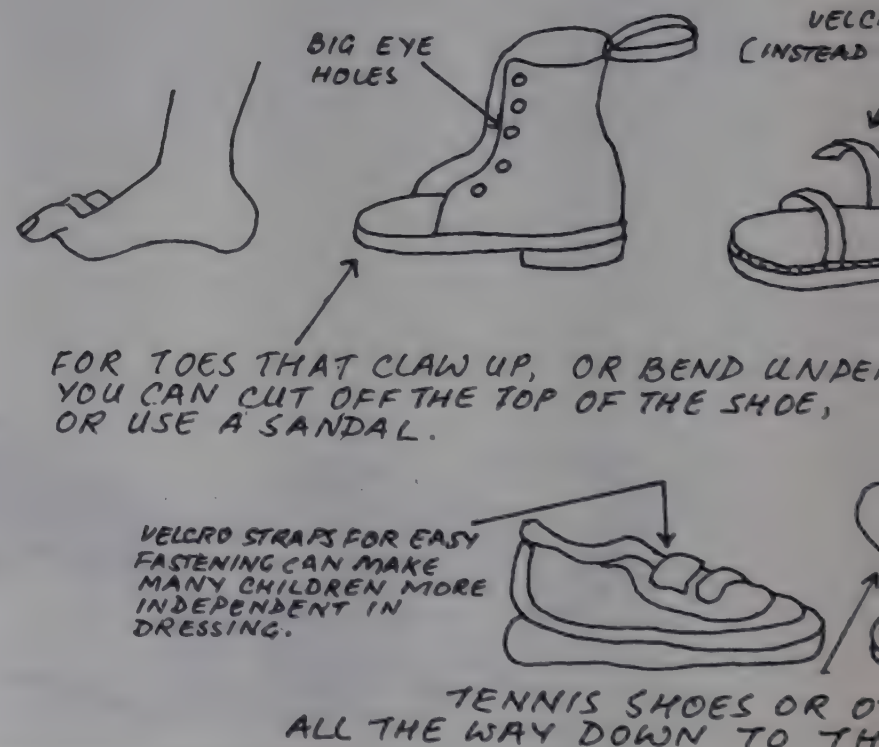
polio, the correct seating and feeding aids for a child with cerebral palsy, the correct hearing aids for the hearing impaired are just a few examples. Physio and occupational therapy are another facet of the physical rehabilitation of the disabled.

In the area of physio and occupational therapy, two trends are observable. On the one hand, there are a handful of institutions and hospital departments where physiotherapists are trained and physiotherapy performed. In these departments the latest technology from the West is regarded as the best. Expensive equipment seems to be the order of the day and 'the trained manpower situation is becoming increasingly unrealistic. Longer courses, misplaced emphasis on electrophysiology, increasing dependence on expensive apparatus are all responsible for turning out a therapist who would demand facilities which his training institution possessed. Without the gadgetry he is helpless, at best he is frustrated. No wonder then that most of our physiotherapists are concentrated in a few major centres. The rest are becoming export-oriented' (P.K. Sethi 1981c).

People at most hospital departments come from very distant places, only to be given barely two to three minutes by the already overworked physiotherapists and then another date probably fifteen days to a month later. Can the patient be blamed for feeling frustrated and helpless and often not returning.

Dr P.K. Sethi of the Rehabilitation Research Centre at Jaipur points out that if the patient and his family are empowered, trained and educated in methods of therapy relating to them, they would be able to translate the physiotherapist's goal into reality.

IDEAS FOR SHOES



Indeed, this is being done in the voluntary sector by a few institutions with great success. At the Dayalpur project of the Spastics Society of Northern India (Delhi), physiotherapy has been demystified. Local women have been trained to identify, assess, and deal with polio cases and are now being trained to work with children with cerebral palsy.

The home management approach at the Delhi Centre where families of children with cerebral palsy are taught and entrusted with the task of therapy has also been successful. This is backed up by group meetings, intensive counselling sessions and workshops on ways to manage children with cerebral palsy. The approach is that of two-way sharing where the parent is seen as the person who knows his/her child best. It is not a top-down approach of a professional talking down to a patient or his family. Unfortunately, however, there are only a few such projects in our country.

Aids and Appliances

With regard to aids and appliances as well, the emphasis at the planning level has been to import Western designs and technology into an Indian setting, and this has not really worked. What results then is a very high rate of rejection of appliances by the disabled person.

Dr Sethi aptly summed up the state of aids and appliances in India when he talked about the polio patient and his calipers. It must be noted that the caliper is the most common device used in India. Further, the

number of agencies involved in fabricating and fitting orthotic devices is more than those involved in any other rehabilitation work.

In the words of Dr Sethi:

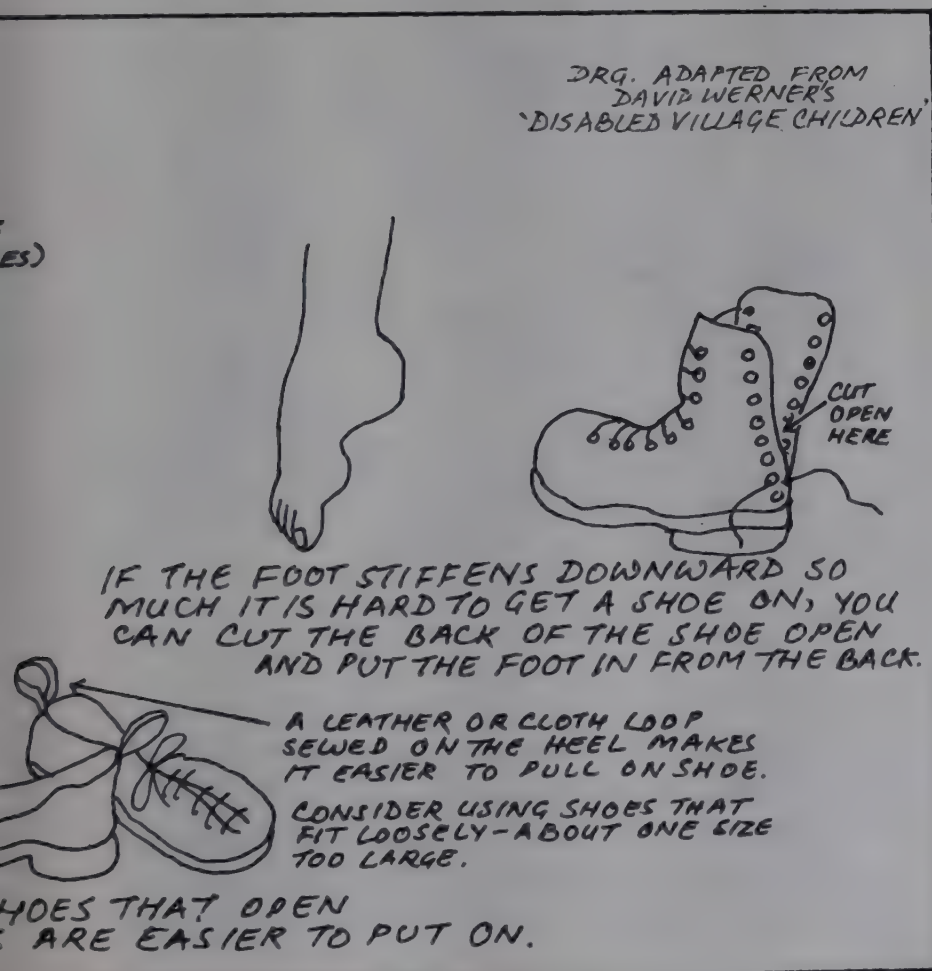
If one witnesses the acceptance rate of calipers in polio patients, and this, to my mind, is ultimately the essential measure of the utility of the appliance, one is surprised to find how prevalent is the rejection of our technological solutions by the polio patients.

Leaving aside severe, bilateral lower limb involvement where the legs are incapable of serving as props, one can see these children each day and on every street. Limping with a hand on the thigh to stabilise a flail knee, or flinging their arms in a grotesque but quite remarkable manner to balance themselves, like acrobats in a circus, or equalising the lengths of their legs utilising a severe deformity at the ankle so that they are walking on their toes—a kind of unilateral caricature of a ballerina. Our middle-class morality is offended at such sights. I have stopped such people on the roads, conversed with them, persuaded them to come to our hospital, provided them with our gleaming ALIMCO calipers, as also our rustic Jaipur analogues, and thus tranquilised my uneasy conscience, sometimes even feeling rather exhilarated at the good deed of the day. And yet I find, again and again, these children setting aside their calipers and resuming their earlier style of ambulation. It is frustrating to us, the orthopaedic surgeons, to be witnesses to this phenomenon.

It seems to me amazing that we are not looking at the problem from the consumer's viewpoint. Is our technological solution so sacred that the consumer ought not to question it? There is one thing I have learnt and it has become one of my guiding principles—that by and large the consumer is right. If the polio victim felt that he could move more easily with the appliance we have designed for him, he would certainly use it. If, however, he finds it restrictive or cumbersome, he will not use it. And good luck to him. It really is as simple as that.

It is often overlooked that the objective in providing a technical aid for a polio patient is not just to make him execute a clinical walk over a short distance on the level surface of a physiotherapy hall. The questions we ought to ask ourselves are: does it help him perform his daily activities better? How great a distance can he walk without feeling exhausted? How fast he can walk?

Many of us imagine that of all the paralytic conditions we are required to manage, polio would be the easiest. The child is of normal intelligence—often more perceptive than average. The sensations



are intact, unlike leprosy or spina bifida with their concomitant problems of pressure sores. The condition is non-progressive, unlike muscular dystrophy. Their frail limbs are easier to control than those of spastics. These undoubtedly are bright features. But, by the same token, this user of our aids is really liable to use them—and often for a lifetime. He is more likely to be a 'community walker' not confined to the home, and therefore, the demands on the aids are of a different order. Let us also not forget that the distribution of paralysis in polio is very uneven, varying from case to case, and all kinds of combinations involving the hip, knee, ankle and foot are encountered. This makes the prescription of the appliance a complex problem, and unless we learn to analyse complex problems we will not be able to offer a patient the optimum solution. There are no simplistic answers to the needs of a polio victim unless we continue to follow what we have thus far been doing—merely over-bracing them.

Can our patient sit easily on the floor and get up without difficulty when trussed up in conventional calipers? Remember, the lower limbs are not meant solely for standing and walking; they also allow us to lower ourselves to be able to squat or sit cross-legged on the floor. This, to us Indians, is important. Most of us sit, eat, work and sleep on the floor.

There is another side to the polio story. When our national planners, sitting in Delhi, calculate the sheer number of polio patients in our vast country, any scheme to cater for their needs gives them cold feet. 'Where are the resources?' they ask. 'Where is the trained manpower to prepare these aids and appliances?' Our track record in this area is best not talked about. If in over forty years after Independence we have only three training schools for prosthetists and orthotists in our country, most of whom remain in large metropolitan towns or migrate to the Gulf, we can wait for another century and still not solve this problem.

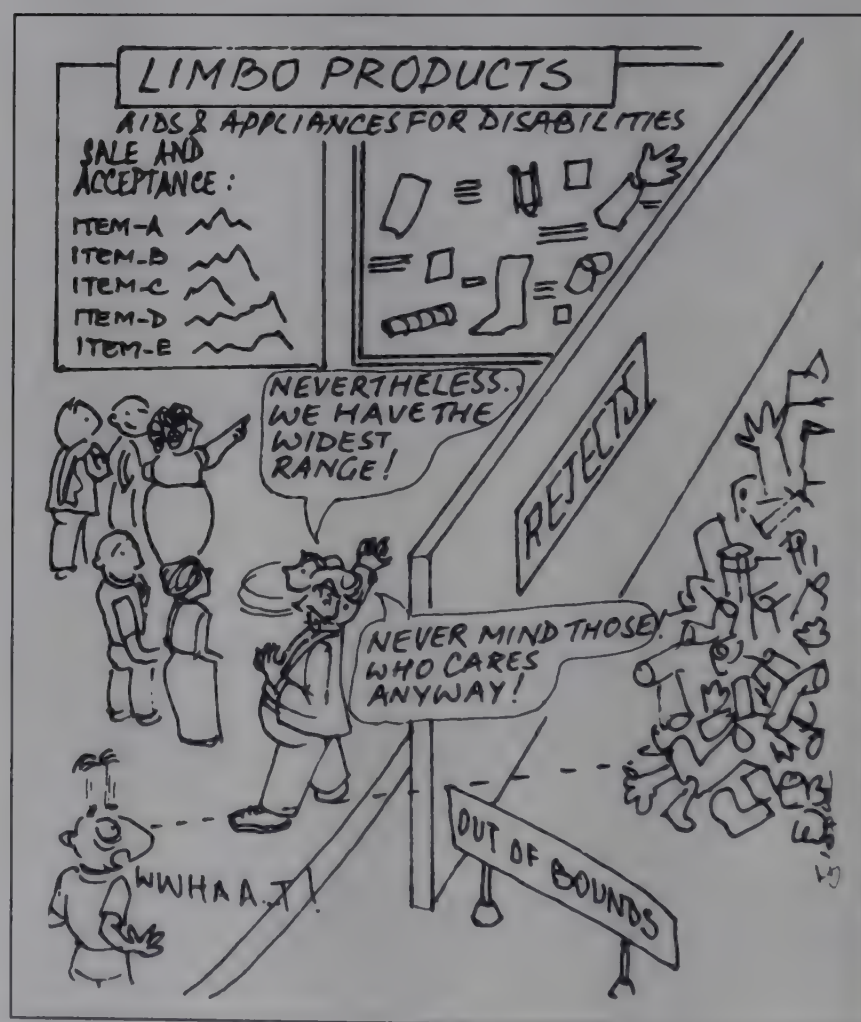
But look at the problem at the village level. There may be half a dozen such children in a particular village who may require some technical aid. And the problem appears to be solvable. If we can simplify our designs, encourage the use of local materials and learn to effectively communicate with our village craftsmen—the carpenter, the cobbler, the blacksmith—they can not only make these appliances for their own village children but also repair and renew them. In effect, we can, if we want, provide these children a service at their doorsteps.

But this is exactly what we are not doing. And what we do is not enough for the large number of disabled people in our country. In 1983, Dr Dinesh Mohan at the

IIT, Delhi, estimated that only about 6 per cent of the amputees in India were using prostheses. This figure did not take into account the fact that many amputees stop using their aids after some time either because they do not suit them, or because they need repairs (Mohan 1983).

The Rehabilitation Technology Centre conducted a survey on the availability of aids and appliances in India. The report published in February 1990 points out that 'suppliers and fabricators of appliances for locomotor disabilities are better distributed all over the country as compared to agencies in the area of visual and hearing handicapped.' Even among the orthopaedically handicapped it has been pointed out that while there are many agencies providing lower limb prostheses, there is an acute shortage of upper limb prostheses. In the area of visual disability, the report specifies that 'activities related to aids and appliances are mainly taking place in Maharashtra, Gujarat, Uttar Pradesh and Delhi. Thus, blind persons in other areas will have to get their requirements from these places.'

It also observes that most agencies do not have a proper feedback system for their products. They do not attempt to find out why different products fail in the market or why they are not used. The net result is that



aids are continued to be prescribed and fitted, only to be added to other showpieces on the wall.

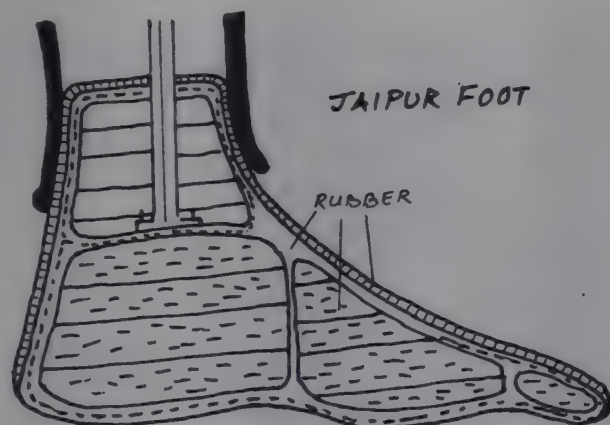
The Government of India has now established a Technology Mission to research the production of innovative, functional and cost-effective aids for disabled people.

THE JAIPUR FOOT

When amputees are fitted with an artificial limb, it is thought that they have been rehabilitated. Little attention is paid to whether they continue to wear the limb and whether it actually suits their environment. It was when people fitted with artificial limbs began discarding them and reverting to their crutches, that Dr P.K. Sethi of the Rehabilitation Research Centre at Jaipur began to ask why people were rejecting a limb they so badly 'needed'. Was it because they were ignorant and irresponsible about their own health or could it be that there was something about the design of the artificial limb that was unsuitable to the conditions under which people lived and worked? Preliminary investigations revealed that indeed the SACH (Solid Ankle Cushioned Heel) foot that people were being fitted with was inappropriate. The model and the design imported from the West were culturally alien.

The SACH foot allowed the user to sit only on a chair and not cross-legged on the ground as most Indians, particularly in rural areas, are used to doing.

The foot of the SACH device is such that a person must wear protective shoes over it. Shoes too are alien to the majority of Indians. Women rejected the limb because they did not wear shoes within their homes at all. Further, a large number of people cannot afford to repeatedly buy shoes for the rest of their lives. The SACH foot, invented and tested in a Western environment, was suitable only for even surfaces and well-paved roads. In India, these are a rarity and the agricultural labourer found himself migrating to cities in search of a more sedentary occupation.



simple but effective and virtually indestructible sponge rubber universal joint is enclosed in rayon cord (used in tyres) and the external surface is a layer of vulcanised rubber moulded in a die which reproduces the shape of a normal foot.'

In this, Dr Sethi got unexpected help. A local craftsman, Shri Ram Chander, offered to share his expertise. Being familiar with traditional sand-casting methods of die-making, he made the first die in which a foot was moulded. A local tyre-retreading mechanic vulcanised the rubber which was used to make the foot.



The Jaipur foot has all the advantages that a foot modelled on Western designs does not have.

- A person wearing the foot can sit cross-legged on the floor; he can also squat
- The foot does not require shoes and is durable enough to be used in water and on uneven surfaces. This is a boon for farmers
- It is made of readily available materials and is inexpensive as compared to Western models. While the Jaipur foot costs about Rs 345, the average cost of the other models is about Rs 700

Ironically, it is these very characteristics—the breakaway from the Western mould and the use of skills that are difficult to standardise—that have been severely criticised by many Western-trained experts. Although internationally acclaimed and vetted, the Jaipur foot has not been universalised in India.

However, it has sparked off some innovation in research of lower limb prosthesis. The Gujarat Pag, designed by a Billimoria-based orthopaedic surgeon, Dr Bhupendra C. Panchal, is claimed to be the 'lightest available artificial limb made of fibre socket. It is flexible and helps in resisting friction in day-to-day practice' (*Indian Express*, 30 March 1989). Recently, Dr S.U. Kabra of the Santokba Durlabhji Memorial Hospital, Jaipur, proposed that an artificial foot can be made by using jointed fresh bones from cadavers, covered with fibre-reinforced vulcanised rubber shell (*Deccan Herald*, 22 November 1990).

Sources:

1. *Aids and Appliances—A Report on Availability and R & D Activities*, Rehabilitation Technology Centre—DRC Scheme, Ministry of Welfare, February 1990.
2. P.K. Sethi, *Technological Choices in Prosthetics and Orthotics for Developing Countries*. *Prosthetics and Orthotics International*, vol. 13, 1989.

It was then that Dr Sethi realised that 'designing a limb is not a simple bio-mechanical problem for overcoming locomotor deficiency or dysfunction. It must also permit people to preserve their lifestyle...one which has evolved over centuries of adaptation and evolution and which provides optimum solutions to their peculiar needs' (*Times of India*, November 1986). What is unique about the Jaipur foot is that it is a result of the fusion of knowledge of a craftsman and that of a surgeon trained in the modern tradition. It is a breakaway from the Western mould, the use of modern technological processes and modern materials, and is an attempt at developing simple, sturdy, inexpensive and functionally effective appliances which can serve the common man. Furthermore, it enables the rural amputee to live in his own environment and work in his own profession. This, according to Dr Sethi, 'is true rehabilitation. Intensive experimentation led to the revolutionary invention of the Jaipur foot. Its design is a complete breakaway from conventional designs. The structural unit containing an extremely

Education

Early and adequate education of the disabled child is an integral part of rehabilitation. This is imperative for it would enable the child to take up an appropriate vocation, be independent, and facilitate his or her integration into mainstream society.

But this very area has been the object of confusion and mismanagement for many years in our country. While the Government of India pledges education for all under the age of 14 years in its Constitution, there was no mention of the disabled child and their needs in any working group or report on education till as recently as 1986. It was the Education Policy of 1986 that finally mentioned and confirmed the right of the disabled child to education. Under the section on equal opportunities, it states 'that the objective should be to integrate the physically and mentally handicapped with the general community as equal partners, to prepare them for normal growth and to enable them to face life with courage and confidence, (*National Policy on Education*, 1986, pp. 6-8, Government of India).

Till 1982, education of the disabled child was under the Ministry of Welfare, rather than the Education Ministry. Till quite recently, education of the disabled child was confined to a few special schools unevenly scattered over 250 districts in the country, primarily favouring the urban areas. These are not able to cater to the large number of disabled children in India. There are reportedly 215 districts in the country which do not have any special schools for disabled children.

Table 3
Special Schools in India

Disability	No. of schools	Enrolment
Orthopaedic	60	NA
Visual	245	15,000
Speech and hearing	357	15,000
Mentally retarded	322	12,121
More than one disability	53	NA

Source: Working Group Report on Seventh Five-Year Plan, Government of India.

The present enrolment of disabled children in general schools is not very high either, with only 30,000 disabled children enrolled.

The NCERT has projected that the number of disabled children in the age group 0 to 14 years is about 7 million. The present infrastructure does not cater to even a fraction of these children. The Ramamurti Committee, which reviewed the National Policy on Education, points out that at the elementary level, the percentage of enrolment of disabled children is only 0.07 per cent, thus reflecting a serious neglect of the education of the handicapped over the past two decades.

Furthermore, a large number of the special schools impart academic training only up to standard five or eight, after which the child has nowhere to go. Very few schools in the country offer formal vocational training to handicapped youth. The training that is imparted is very routine and confined to conventional trades like tailoring, carpentry and book-binding.

The criterion for eligibility to admission in special schools varies from school to school, often excluding the very children who need it most. A survey conducted in Delhi's special schools for disabled children reveals that most schools do not admit mentally retarded children below a certain IQ level. Many lay down the condition that the child must be toilet-trained to gain admission. As a result, children who are severely affected are often left out.

Special schools have themselves come in for severe criticism in recent years. These schools have the disadvantage of not being able to prepare a disabled child for integration into society. The cost of setting up special schools is also prohibitive, and cannot be justified in view of the fact that little attempt is made to integrate these children into the mainstream.

This is not to say that special schools are not important. For children who are severely disabled and who cannot be integrated, a special school is often the only answer. Yet, it is these very children who fail to gain admission to these schools.



Integrated Education

Studies and reports the world over have shown that a disabled child who is integrated into a general school stands a much better chance of being accepted in society. And, the younger the child, the easier it is for a normal child to accept his disabled peers, as also for the disabled child to accept his own disability. Special schools are not the only answer.

Recognising this the Ministry of Welfare introduced the Scheme of Integrated Education in 1974. The attempt was to teach disabled children in the same schools and classes as normal children. Teachers are given special training and monetary incentives to teach disabled children, and one such teacher can look after eight to ten children in a school. The scheme also provides the funds for a transport allowance for the disabled child, the purchase of special equipment, construction of a resource room and other facilities needed to teach such children. The scheme began by giving 100 per cent assistance to any school that wished to adopt it. However, the scheme only allowed for children with mild disabilities to be integrated in the normal schools.

Since schools were given the choice of adopting the scheme, only a few states like Maharashtra and Kerala opted to join. Furthermore, there was a great deal of confusion regarding the implementation of the scheme which was under the Ministry of Welfare, while education and administration of schools was under the Ministry of Education.

The scheme received a major setback in 1979 when the government cut back the 100 per cent assistance to only 50 per cent assistance. The few states which had begun work on integration immediately stopped. Disabled children were once again out in the cold. It was only in 1981—the International Year of the Disabled Child—that the government once again announced a revival of the scheme with 100 per cent assistance for those who accepted it.

In 1982, the education of disabled children changed hands; it passed from the Ministry of Welfare to the Ministry of Education. But once again, a major problem arose. The vast education sector was just not equipped in terms of knowledge, training and materials to deal with the special needs of disabled children.

The scheme for integrated education also continues to face problems at the implementation level. In the few states which had accepted the scheme, it was being implemented only in select institutions, most of which were in the urban areas. The rural disabled child was ignored even under this scheme. Also, prejudices against the disabled child are so deep-rooted that often parents of normal children refuse to let their children attend school if disabled children are also included. In fact, the major problem facing the scheme today is that none of the states or schools are compelled to accept disabled

children. Therefore, most private or public schools and many government schools have not accepted the scheme. The stipulation of one trained teacher for eight to ten disabled children in each school also did not work in areas where the population was scattered.

'Non-availability of learning materials suited to special needs, inadequate infrastructure for identification and assessment, inadequate community and parent participation' are some of the other reasons cited by the NCERT for the slow progress of the scheme. The Ramamurti Report points out that although the scheme was implemented for several years, it was more in terms of 'mini special schools within general schools.' One reason for this is that there was no provision for the sensitisation and involvement of all the teachers.

Box 8

THE PROJECT FOR INTEGRATED EDUCATION

The Project for Integrated Education, NCERT, was taken up in 1987 to demonstrate that all mildly disabled children in an area can be educated within the present educational system. For this, areas were chosen away from the state or district headquarters: blocks with a highly scattered hill population like the Khozol block in Mizoram, blocks with a scattered population in the plains like the Chabbra in Rajasthan, and blocks like Balyanta and Kalakunten in the coastal areas of Tamil Nadu were selected.

Some of these blocks had available support structures like the district rehabilitation centre, the health infrastructure, the ICDS scheme, and health and social welfare programmes. Other blocks had none or only a few of these back-up systems.

- Some of the states chosen were responsive at the district and administrative levels while others were not
- With these difficult situations to contend with, the NCERT formulated and conducted a five-day training course for every teacher in the chosen blocks. The training included the identification of mild disabilities. Forty to fifty teachers were chosen and given further training for four weeks in the identification of all disabilities. They were taught how to assess a child with disabilities if no specialist was available. Of these, ten teachers were given multi-category training for one year. These teachers functioned as resource persons for schools within walking distance of the resource room which was set up in each block and which contained special aids such as a braille, speech trainer, etc. These were to be shared by the different schools which the resource persons catered to
- If there were any NGOs in any of these blocks willing to work on the scheme, their involvement was encouraged and this collaboration has in fact worked particularly well
- House-to-house surveys have been conducted by teachers to detect disabilities in all age groups and where possible, people are referred to different sectors and offices where they can get help
- The project has worked particularly well in Mizoram, where the initiative for training came from *anganwadi* workers. All the mildly disabled children in Mizoram are now attending school

In 1983, the NCERT took over the scheme of integrated education. It has since taken up the Pilot Project for Integrated Education, which aims to strengthen the existing scheme as also work out innovative ways of integrating disabled children in general schools.

While children with mild disabilities are required to be given admission in general schools, the 1986 Education Policy recommends the establishment of special schools for very severely disabled children. The Action Programme has suggested that there be one such school in each district of the country, i.e., 400 special schools. With the establishment of these schools the government hopes to cover only about 15,000 severely disabled children. These schools, Sarvodaya Vidyalayas, are to be established during the Eighth Plan.

While work has begun in the area of education for disabled children, very few are actually being educated. While the mildly and severely disabled children are at least being provided for in terms of schools, the moderately disabled child is completely neglected within the present education system.

Vocational Rehabilitation

For a disabled person, a crucial aspect in gaining independence is being trained for a vocation and being able to earn livelihood. Yet, this is an area grossly neglected by those concerned about and involved with the rehabilitation of disabled people.

According to the 1981 Census, the following are the estimated statistics of handicapped persons in the age group 15 to 59 years:

Locomotor disability	— 25.95 lakhs
Visual disability	— 8.72 lakhs
Hearing disability	— 17.07 lakhs
Speech disability	— 8.88 lakhs

A disabled person might need special training to enable him or her to undertake a vocation; he might need special aids with which to perform the job. This is rarely possible in India as most vocational training institutions, the IITs, polytechnics, and other training institutes are not equipped to train a disabled person. The few who do receive training are usually those with a mild orthopaedic handicap.

The government has set up sixteen Vocational Rehabilitation Centres in different parts of the country. These centres are supposed to assess, train and find jobs for disabled people. However, their training is limited to stereotypical occupations such as knitting and sewing for women, and while men do have a greater variety of occupations from which to choose, very few of those actually admitted are rehabilitated. Furthermore, how many people can sixteen centres actually train?

It is unfortunate that most of the vocational training centres for the disabled in this country are limited to offering training in non-profit ventures like chalk-making, candle-making, basket-weaving, book-binding and printing. These yield hardly any revenue for the individual, which really is the main purpose of the vocational rehabilitation of the disabled.

Another major problem faced by the disabled is that their employers are often prejudiced against them, fearing poor productivity and absenteeism on the job. In the late 1950s, the Government of India issued a memorandum to all public sector undertakings to reserve jobs in categories C and D, i.e., Class III and IV, for the visually handicapped, those with speech and hearing impairment, and the orthopaedically handicapped. There was to be 1 per cent reservation for these categories of disabled. No such reservation was made for the mentally retarded. The Occupational Information Unit of the Ministry of Labour conducted a survey and identified jobs in categories A and B for physically disabled people. However, no reservation has been made for them to date.

The policy of reservation continues but it is not legally enforceable as it is the result of executive orders. Further, it is limited to public sector undertakings alone, not private undertakings in the organised or unorganised sector. Hence, the disabled are often forced to seek employment in the unorganised sector where there are no social security benefits. There are also ways of circumventing the reservation. A post reserved for a handicapped person may be filled by a non-handicapped person if a 'suitable' handicapped person is not found.

Thailand has solved the problem of reservation in a very interesting and innovative manner. By law, every public and private sector undertaking with over 200 employees has to employ disabled people. Although there is only 0.5 per cent reservation for disabled people, if they do not employ them they are forced to pay a nominal tax, which then goes towards the training and job development of disabled people in the companies that do employ them. Thus, money is always available for the training of disabled people and an indirect incentive for those who do employ them.

National Corporation for the Employment of the Disabled

Several countries in the West have created a special organised sector which offers job opportunities to the disabled. Remploy Limited in the UK and Industries for the Blind and the Severely Handicapped in the USA are good examples. In the USSR, there are over 200 industrial enterprises for the blind and other disabled persons. Taking these as examples, the Government of India has decided to set up a National Corporation charged with the task of establishing special workshops and agro-

based industries and programmes for home workers, to assist disabled persons, particularly disabled women, to make a living. The special workshops will have a ratio of 75:25 disabled to non-disabled persons. An area in which the government believes the workshops could be successful is that of manufacturing such items as soap, after-shave lotion, toothpaste, tooth powder, and several other cosmetics and health products.

In the field of electronics it may be possible for the workshops to undertake the manufacture of television antennae, tape recorders, gas lighters and other organic products. In rural areas, *ghee*-making and rope-making could be viable propositions. Other home-based products could also be included.

Conclusion

Nine years before the year AD 2000, the year for which so many targets have been set: to eradicate polio, to reduce the incidence of blindness to 0.3 per cent, to achieve universal immunisation, the list is endless. Are we anywhere near achieving these targets?

While there is a growing awareness in the country about the needs of disabled people, there is no movement that has been built up to fight for their rights. Even among the disabled, there is little intermingling or communication between people with different kinds of disabilities. Only the visually disabled have been a particularly vocal group, periodically organising and publicly demanding their rights.

One area of concern has been legislation. The disabled argue strongly in favour of legislation, without which, they say, they will always face rejection in such vital areas as vocational training and education. Most of the concessions given to them are through executive orders of the centre which are not enforceable by law. The Government of India has intermittently set up committees to examine this issue. The last of these, the Bahrul Islam Committee, submitted its report in 1989. It asked for a comprehensive legislation in favour of the disabled, but action on its recommendations is yet to be taken.

People working with the disabled often argue: 'if we cannot provide for our "normal" people, how can we

even begin to provide for those who are disabled. Let us concentrate on more important and basic issues like poverty. Let us battle killer diseases like small pox and malaria, then think about disability.' It is almost as if the disabled are a separate group waiting patiently in a long queue for their turn. If we look closely at the causes of disability in India, we find that the major causes are related to poor socio-economic conditions. Issues of disability are thus also issues of poverty.

International developments in the last few years have drawn our attention towards another emerging aspect of disability—war and armed conflict within nations. Dr David Werner has argued that all those who are involved with the prevention of disability and concerned about disabled individuals must broaden their focus and acknowledge that in most nations the significant causes of disability are the direct or indirect consequences of armed conflict. 'The strategy of modern warfare, particularly low intensity conflict, is to target civilian populations and infrastructure, particularly schools and teachers, health posts, clinic and health workers. In addition to women and children who are killed and disabled by bombs, gun fire, mines and anti-personnel devices, many more die or become disabled because of interruptions in food and water supplies, health care and immunisations' (*International Rehabilitation Review*, vol. XLI, nos. 2 and 3, October 1990). The Rehabilitation International and UNICEF Technical Support Program study teams visited Afghan refugees in Pakistan, Angola, Mozambique, Nicaragua and El Salvador. These were some of their findings:

- In Afghanistan as many as two million children have been killed in the last ten years either by fighting or as a result of the disease, malnutrition and dislocation that is associated with war. Estimates of 350 to 500,000 war-related disabilities include 100,000 children
- In Cambodia 40 per cent of all children die from diarrhoea and malnutrition, largely because food aid cannot be distributed effectively, nor sanitary water provided. An estimated 10,000 amputations have resulted
- In Mozambique 500,000 school-going children have been forced out from their homes and 40 per cent of the country's schools destroyed. There have been an estimated 50,000 amputations and in Angola 20,000

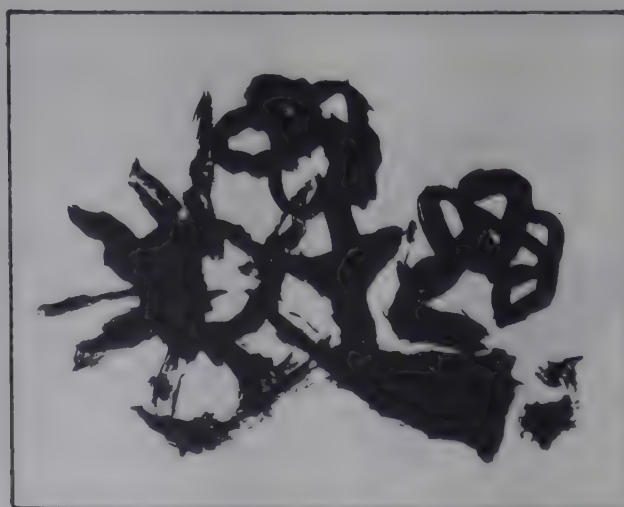
The report points out that the gravity of the situation is compounded by the lack of trained physicians and technicians, lack of rehabilitation services and lack of awareness among people of those that do exist.

In India, too, the ever-increasing conflicts in different parts of the country will only result in a larger number of dead or disabled. These are the invisible but very real effects of conflicts within our country.



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Mental Health

Introduction

Until the arrival of the European powers in the 18th and 19th centuries, there were no separate services for the mentally ill. The traditional Indian medical systems, such as ayurveda or unani, recognised various types of mental illness. Traditional medical practitioners provided the necessary treatment as part of their practice long before the discovery of modern tranquilisers (Wig 1990). In ayurveda, for instance, *sarpagandha*, a preparation containing reserpine, was used for mental disorders. Indian philosophy attaches great importance to concepts of mental health which are contained in such Indian philosophical texts as the *Yoga-sutra* (Taimni 1979). The well-known methods of yoga and meditation emphasise the value of the inner life and the need for mental reflection. They stress the temporary withdrawal of the mind and senses from outer things towards a contemplation of one's inner reality (Wig 1990). Thus, what is striking about traditional mental health care is that there is no separation of the mind and body in understanding illness and its treatment.

Since Independence, India has been progressively developing the infrastructure for basic health services. The overall goal, as stated by Indira Gandhi in May 1981, while addressing the World Health Assembly, is: 'to go to homes instead of gravitating towards centralised hospitals in large numbers. Services must begin where people are and where problems arise'. The growth of general health services shifted from the vertical programmes of the 1950s to an integrated health service in the 1970s. The current aim is to set up one sub-centre for every 5,000 population with one male and one female health worker, and one primary health centre for every 30,000 population. The role of the health workers and health centres is to provide comprehensive preventive, promotive and curative services. It is against this background of the development of health policy in the country that the formulation of the National Mental Health Programme for India (NMHP) and the development of mental health has to be viewed (Government of India 1982).

Historical Development of Mental Health

Before Independence, there were no clear strategies for the care of the mentally ill. The approach was largely to build 'asylums' which were custodial rather than therapeutic centres. The situation with regard to mental health services at the time of Independence is clearly illustrated in the recommendations of the Bhore Committee:

Box 1

MENTAL HEALTH

Our intellectual preoccupation with thoughts of darkness seems to be growing and deepening. The expression 'areas of darkness' now includes a new field—the sphere of physical and medical care for the mentally ill. At a recent seminar on mental retardation in Delhi, it was stated that about 20 million people, 'perfectly sane', were sent to 'lunatic asylums' because the relevant law declared them unfit for life anywhere else. Although the old name for hospitals meant for patients of diseases like schizophrenia and acute depression has been modified, there is no change in the social or official attitude towards the sufferers. Add to the vast number of such patients the millions of the mentally retarded, and the dark area will be linked to similar pockets of gloom—economic, political, social and educational. The British gave us a law which seems to be more relevant, literally, now than ever before: it was called the Indian Lunacy Act! Framed in 1912, it did not differentiate between a schizophrenic and a mentally retarded person. Almost eight decades later, the 'idiots' continue to be ostracised by relatives, care-takers and the state.

Not too long ago—in December 1990—the then Health Minister, Mr Shakil-ur-Rahman, paid a surprise visit to the Hospital for Mental Diseases in Shahdara in east Delhi. He found the condition there appalling: no electricity, no security guard, no respect for the elementary norms of health and hygiene and no evidence of the recognition of the purpose for which the inmates were undergoing involuntary confinement—proper psychiatric and psychological treatment. The Minister prescribed a six weeks' time-bound programme to bringing about a qualitative change in the situation. To this day the programme has not been implemented. What has, however been done with a certain sense of urgency is a whitewash, both literal and figurative. The Shahdara institution attracted attention as far back as in July 1988, when a poor and helpless 22-year old woman, Madhubala, was detained there because she made a desperate attempt at survival by trying to sell her blood to buy bread. Madhubala was freed. So was another female

The situation in 1991, over forty years later, is little different; although the number of hospital beds has increased to about 22,000, the bed:population ratio remains the same due to a concurrent increase in the population.

However, the last four decades stand out as a period of immense activity in the field of planning and research in mental health care. The scenario has changed from a few isolated efforts to establish the magnitude of the problem during the early 1960s, to one of active efforts to reach beyond the confines of traditional psychiatry during the 1980s.

patient of the same age during Mr Rahman's visit. This person was termed 'violent' and kept alone in a cell for over four months. These are not stray cases. The radical reformers from amongst our society's elite should visit at least two mental hospitals—at Shahdara and Kanke (Ranchi)—and undertake a little earnest fact-finding.

The prevailing lack of understanding and care with respect to mentally ill decades after Independence indicates a darker spot than an 'area of darkness'. The usual explanation that the mental casualties are victims of an industrialised society, which has increased its demands upon its members, is only the partial truth. The normalcy of the countless unincarcerated 'normal' persons too is in doubt. The unfortunate 'normal' people, described as lunatics and made to suffer in uncaring institutions because of deviant behaviour, need immediate screening and attention; those found mentally healthy by genuinely sane observers, including unbiased social workers, jurists and psychologists, should be freed and rehabilitated; the genuinely ill men and women should be given due attention; the still ineffective Mental Health Act of 1987 should get the required notification; those who exploit depressed persons for financial gains should be severely punished; and wherever literacy or basic education is able to make an impact, the awareness of mental health and hygiene should be a part of community discussion. The sciences, both physical and metaphysical, are making great strides. It is time each mentally ill person was treated as a separate entity. Besides psychiatry, new techniques of psychosynthesis, behaviour therapy, imagery and yoga are available as reliable aids. With every second or third individual complaining of a 'hurt psyche', we are inexorably moving towards national lunacy. Rectification of the situation at our Shahdaras and Kankes is the least we can do to avoid a collective catastrophe. This is the predicament of all concerned, for the plight concerns all of us. We must take care.

Source: *The Tribune*, 24 March 1991, Chandigarh.

Even if the proportion of mental patients is taken as two per thousand population in India, hospital accommodation should be available for at least 8,00,000 patients as against the existing provision for a little over 10,000 beds for the country as a whole. In India, the existing number of mental hospital beds is in the ratio of one bed to about 40,000 population, while in England, the corresponding ratio is approximately one bed to 300 population (Government of India 1946).

The place assigned to mental health in the public health programmes was modest during the first two decades. In the mid-1940s (Bhore 1946), Col. M. Taylor's report called for improvements in seventeen mental hospitals and the establishment of seven new institutions within the following ten years. In addition, the need for training of medical and ancillary mental health personnel was emphasised. A visible result in the first decade after Independence (1950s) was the setting up of the All India Institute of Mental Health (AIIMH) at Bangalore for the



training of psychiatrists, psychologists and psychiatric nurses. The situation was reviewed by the Mudaliar Committee in 1962, which envisaged that within the next ten years psychiatric units would be set up in all district hospitals. Although almost thirty years have elapsed since, a majority of district hospitals in the country (with the exception of Kerala, Karnataka and Tamil Nadu) do not have such units. The failure to meet targets is also visible in the dearth of departments of psychiatry in medical colleges.

The decade of the 1970s was marked by active thinking in this area. Concern for organising mental health services was expressed in national and regional forums. Notable among these are the Indian Psychiatric Society's seminars/workshops held at Madurai (1971), Trivandrum (1975) and Nagpur (1976) (IPS 1971, 1975, 1976). The WHO-SEARO, New Delhi, organised a number of meetings to consider this issue (WHO 1971, 1974). Another reflection of this concern was the choice of mental health as the subject of four Presidential Addresses (Bagadia 1971; Jayaram 1972; Vidya Sagar 1973;

Deb Sikar 1974). All these efforts raised hopes of a possible breakthrough in this area and the development of mental health activities at the national level.

Of the concerns expressed and suggestions made, *two* views emerged: first, the recognition by all that trained mental health professionals alone would be inadequate to meet the growing needs; and second, the need to develop services beyond mental health institutions. This was expressed clearly in a number of ways. Two examples will be illustrative of these points:

Even if almost all the five-year plan efforts in the field of health were only geared to increasing the number of psychiatric doctors, it...would be impossible to provide an adequate number of hospital beds and mental specialists even in the next 50 to 100 years...even if the training facilities in the country are doubled and trebled, which is not easy, it could still require nearly 100 years to provide an adequate number of psychiatrists for working in the curative field (IPS 1964).

One of the most important elements in the supply of health care in India is the primary health centre. Upto now PHCs have not been developed to their full potential, but as trained staff and supplies become available, they will become increasingly important elements in the delivery of health care, and as soon as possible the opportunity should be taken to provide mental health care at and from these centres, through the multidisciplinary team and by the use of other available staff, such as government medical officers, nurses, family planning workers and basic health workers, who have undergone suitable training (WHO 1971).

(i) Cases of mental and emotional disorders are numerous, and trained professionals in this field are very few; hence, mental health care must be given by many other types of workers, including (a) general practitioners and medical officers; (b) nurses, health visitors and midwives; (c) social workers, including voluntary social workers and *gram sevaks*; and (d) government and voluntary agencies; all of these workers will require instruction in mental health and mental illness suited to their level or professional training; (ii) members of the families of the affected patients should also be instructed so that they can help in the management and after-care of patients; (iii) the recognition and treatment of mental disorders should be part of curative health services in primary health centres, in district hospitals and in general and teaching hospitals; (iv) there is still a place for mental hospitals, but they should be centres of active treatment of severe and chronic cases; in order to improve the standards of care they should have more trained staff; when new mental hospitals are built, they should be kept small in size and their work should include out-patient clinics and after-care (IPS 1971).

It is significant to note that in a number of centres around the country, efforts were directed during the second half of the 1970s to operationalise these suggestions in the form of pilot community mental health programmes. During the 1980s, the National Mental Health Programme for India was formulated, with emphasis on integration of mental health care, improvement in mental hospitals, enhanced training in medical colleges and initiatives from the voluntary sector.

Psychiatric Facilities

To date, the mental health institutional infrastructure in India consists primarily of mental hospitals alone, which number forty-two in the country, with a total bed capacity of about 22,000 beds. This too is grossly inadequate when compared globally. For example,

Holland with a population of 15 million has more than the total number of beds for mental patients in India. The cities of New York and Tokyo each have more psychiatric beds than are available in the whole country. In addition, about one-third of mental hospital beds are located in four hospitals in Maharashtra. There are no mental hospitals in the states of Haryana, Himachal Pradesh, Manipur, Meghalaya, Arunachal Pradesh, Mizoram and the Union Territories of Andaman and Nicobar Islands, Chandigarh, Pondicherry and Lakshadweep. Of the existing beds in mental hospitals, more than 50 per cent are occupied by patients likely to need them for a long time. Furthermore, these hospitals are characterised by a very low level of professional staff as well as extremely limited facilities for rehabilitation and specialised care.

During the last ten years the unsatisfactory conditions of mental hospitals have been the subject of public interest litigation at Ranchi, Trivandrum, Delhi and Pune. Although one still hears such observations as: patients are made to lose all sense of human dignity; they are treated no better than cattle, etc., there have been positive developments in the hospitals at Trivandrum, Ranchi, Delhi and Pune. The demand for better services in the institutions is, in a sense, an important reflection of the growing awareness of the general public and the



changed perception of these hospitals as treatment centres rather than centres for custodial care alone.

With regard to mental health manpower and training facilities, there were only a handful of psychiatrists and no recognised facility for training psychiatrists within the country at the time of Independence. The first effort was the establishment of the AIIMH at Bangalore in 1954. From January 1955, diploma courses in psychological medicine were started. At present, about three dozen centres provide training for DPM and MD courses. It is estimated that over 150 psychiatrists qualify annually and there are currently about 1,500 psychiatrists in the country.

Training facilities for clinical psychologists are available at Ranchi, Bihar and Bangalore, and there are about 400 to 500 clinical psychologists working in the country. Training facilities for psychiatric social workers are currently available in Bangalore alone, and only twelve professionals are trained annually. Psychiatric nurses are trained at Bangalore and Ranchi which offer a diploma course of a duration of ten months. At Delhi, Bangalore and Chandigarh, a two-year (M.Sc.) postgraduate course in psychiatric nursing is available. The total number of psychiatric nurses in the country is estimated to be 500.

Prevalence and Pattern of Mental Disorder in India

The major groups of problems associated with mental health are psychosis, neurosis and mental retardation. The prevalence rate for each of these disorders differs across studies according to (i) the characteristics of the population groups (e.g., rural/urban), (ii) the methods used to screen the population, and (iii) diagnostic procedures utilised in the particular survey. The prevalence rate for psychosis is largely uniform—around 1 per cent of the general population. The neurosis prevalence rate is about 50 to 100 per thousand of the general population. It has also been found that there is a relative preponderance of females in the neurotic illness group. The prevalence rate for mental retardation is around 1 to 2 per cent, depending on the degree of mental retardation.

The drug abuse surveys carried out in the general population and special groups like school and college students report relatively high prevalence rates for 'all forms of drug abuse'. However, the rate for 'drug dependence' is less (about 1 per cent). An emerging problem of recent times is the high user level of alcohol in both rural and urban areas. Three recent studies from Bangalore, Pondicherry and Madras report alcohol dependence to be 6 per cent among the adult population. There is clear evidence that alcohol-related syndromes can become a major public health problem in India, especially in south India. The prevalence of psychiatric problems in children has been the subject of a limited number of studies. Verghese et al. (1973) and Verghese

and Beig (1974) report a prevalence rate of 82 per 1,000, which includes enuresis (52/1,000), mental deficiency (20/1,000), behaviour disorder (8/1,000) and sleep walking (2/1,000). Similar results were found in a recent study covering a rural population of 32,000 from Bangalore district (Srinivasa Murthy 1991). Other studies of special population groups like the elderly have reported a very high prevalence rate (around 200/1,000) of emotional disorders in those above the age of 50. A majority of these are depressive disorders.

Another important series of studies relates to the prevalence of psychiatric problems in the area of non-psychiatric health (see Harding et al. 1980; Shamasundar et al. 1986; Sriram et al. 1987). A number of studies have shown that 10 to 14 per cent of those attending general medical clinics suffer from mental health problems.

In one study of 1,853 medical care seekers in a general health facility, 193 (10.4 per cent) were found to have psychosocial problems. Patients with psychosocial problems were predominantly female, in the age group 16 to 45 years; they had a greater number of spontaneous complaints (more than four), longer duration of illness and had come to the facility from a greater distance than those with physical problems (5 km). In 60 per cent of this group, the cause of the stress lay in personal and family life. The most common complaints were sleep disturbance, tiredness/weakness, bodyache, decreased appetite, headache, backache, sadness, and pain in the abdomen, limbs and chest. The common sources of stress identified were family and social (50 per cent), financial (19 per cent), health (18 per cent), marital and sexual (10 per cent), and bereavement (10 per cent). However, the untrained PHC staff recognise only 10 per cent of these problems as psychosocial disorders.

Innovative Approaches to Mental Health Care in India

Since the time of Independence, mental health professionals have recognised the need to reach beyond the institutional framework and utilise community resources for mental health. It is notable that the experiences described below have made mental health care a reality despite limited professionals and facilities.

General Hospital Psychiatry

An important phase in the development of mental health services was the creation of general hospital psychiatric units (GHPUs). This has been a slow and silent process which brought about a qualitative change in the whole approach to psychiatric treatment over the last two decades. Although such units for mentally ill persons were started as early as 1933, the major spurt in activity came in the 1960s (Wig 1978).



The GHPU provided an impetus for the greater acceptance of psychiatric services by the public without fear of social stigma. These units have also brought about a change in the training of professionals and in research in mental health. In the last three decades more and more centres have come up all over the country, most of them twenty to fifty bed units. Today, there are about 3,000 beds under this facility in different parts of the country. It is estimated that 75 per cent of the research in this area is by professionals working in these units. An extension of these units are the district hospital psychiatric units, work on which has been taken up systematically in at least two states, Kerala and Tamil Nadu, which have a psychiatrist in each district. Most medical colleges have units for psychiatric care as part of the department of medicine or as independent departments. A growing number of general hospitals and district hospitals are also beginning to provide this service.

Involvement of Family Members in Care

Starting with the work of Dr Vidya Sagar in 1954 at Amritsar, family members have been an important resource in mental health care at several levels: (i) family members as care providers in the hospital setting; (ii) family involvement in therapy; (iii) family members as

trainers of the mentally retarded; and (iv) family members as a pressure group for policy change and better facilities. While Indian families have always been an important source of strength in the care of the mentally ill (Verghese 1971), initiatives to involve the family have now become the trend in the West.

Integration with General Health Care

The next phase in the development of mental health services was the community care approach. The impetus for this approach has come from the following sources:

- (i) The commitment of the country to provide health services to all
- (ii) The Alma Ata Declaration of primary health care
- (iii) The existence of a large general health service infrastructure (PHC system)
- (iv) The involvement of multipurpose workers and rural doctors to provide health care to rural people
- (v) The realisation of the problem of severe mental disorders in the community and the availability of simple interventions for these conditions
- (iv) Experiences of community mental health care at the Bangalore and Chandigarh centres

Two centres, Bangalore and Chandigarh, took up community mental health work in 1975. Both these centres examined the feasibility of including mental health care as part of general health services. The results clearly indicated that the mental health needs of the community could not be ignored. It was further shown that it is possible to develop simple training materials to suit the needs of PHC personnel and to train them to carry out a limited range of tasks to benefit the mentally ill in the rural areas. These initial efforts have now been taken up in other centres, among them Baroda, Calcutta, Hyderabad, Lucknow, Trivandrum and Gauhati (Government of India 1982; Srinivasa Murthy 1987).

The Bellary District Mental Health programme initiated in 1985 has provided details of the feasibility of integrating mental health with primary health care at the district level, covering a population of 1.5 million. In particular, the mechanism for decentralised training, methods of involving the local community, a simple record system, use of essential drugs, and a mechanism for the district mental health team to monitor the programme have been developed as part of this project. Another important feature is the active tripartite collaboration between the DHS Karnataka, the *zilla parishad* Bellary, and NIMHANS Bangalore to develop this programme (Issac 1988).

As a result of these efforts, it is currently feasible to initiate mental health programmes as part of the PHC system. This has the potential to provide basic mental

Box 2

COMMUNITY PSYCHIATRY APPROACH

In India, mental illness is viewed as a curse and mental treatment is perceived to be confinement in a lunatic asylum. This results in the inhuman treatment of patients by society and neglect by the mental health services. Half the available bed capacity—which is less than 1/30th of a bed per thousand population—is blocked by patients who have either been cured or no longer require hospitalisation, but have been neglected by their relatives. The modern psychiatric approach tends to fail as its methods of delivery of services are largely unsuited, with limited specialist manpower and material resources.

The range and intensity of mental ailments is much broader than is fathomed by the common mind. According to the Directorate General of Health, roughly 10 million people are afflicted with serious mental disorders. Figures for neurosis and psychiatric disorders are two to three times higher. New cases of serious mental disorders are estimated at 35 per thousand. Mental retardation is estimated at 0.5 per cent to 1 per cent of all children. One to 2 per cent of all children suffer from learning and behavioural disorders. Alcohol and drug-related problems reveal an alarming growth. A staggering 60 to 70 million people in India require mental health care. However, the infrastructure and trained personnel required to cope with this demand are sadly lacking.

The psychiatric approach has hitherto been deeply rooted in Western cultures. There is a tendency to focus clinically on mental illness rather than humanely on mental health. Many mental hospitals are essentially custodial rather than therapeutic institutions, and are no different from prisons.

In the West, the humane approach to managing the mentally ill had begun in the late 18th century with the efforts of Phillippe Pinel, superintendent of two large asylums in Paris where the mentally ill, mentally retarded and criminals were chained and housed. Pinel liberated the mental patients from their chains and initiated a humane approach. The recent trend in psychiatric care, however, is to synthesise the humane ideas of Pinel with Freudian psychoanalysis. The discovery of chlorpromazine and a series of other psychotropic drugs and the consequent deinstitutionalisation in the 1950s brought about what is termed as a community psychiatry movement.

Till the 1960s, mental health services in India were centred in the mental hospitals though a breakthrough was made in terms of research, training and overall quality of services. In 1957, the veteran psychiatrist Dr Vidya Sagar transformed the Amritsar Mental Hospital into a centre for humane and liberal treatment. He involved the relatives of the patients in looking after them. They were invited to stay with them and in the process were familiarised with the principles of mental health which they could then take back to the community.

The first step in the non-institutional management of the mentally ill in India was the setting up of general hospital psychiatry units. Initially they were established in general hospitals attached to medical colleges but later psychiatric units came up in both governmental as well as private or missionary general hospitals. Currently, in most states, the general hospital psychiatry units are situated in the state capitals or other big cities, but in at least two states (Kerala and Tamil Nadu) every hospital at the district headquarters has a psychiatric unit.

The introduction and expansion of psychiatric care in general hospitals has brought about a complete change of outlook, both from the professional and public points of view, in terms of general public acceptance, as well as training of mental health professionals and research workers.

The new approach has a number of advantages over traditional mental hospitals. For instance, general hospital facilities are more acceptable and easily approachable. Families can visit and relatives can stay with the patients. There is no stigma

attached and there are no legal restrictions on admissions or treatment; and proximity to other medical facilities ensures thorough physical investigations and early detection of associated physical problems. This method of treatment, because of limited patient facilities, has brought in ambulatory care and has broken the myth that mental illnesses can be treated only in closed mental hospitals. Hospital-based psychiatry is thus being replaced by a larger community-based mental health movement.

Although services for the mentally ill considerably improved over the past three decades, most of these services were available in urban areas, catering to a small proportion of the needy population. There was a need to evolve cost-effective alternative approaches of mental health care which would be decentralised and integrated with general health care to provide basic mental health care. During the mid-1970s, two centres in the country—Department of Psychiatry at the Postgraduate Institute of Medical Education and Research at Chandigarh and the National Institute of Mental Health and Neuroscience, Bangalore—initiated pilot programmes on community-based mental health care.

The basic approach of the programme is to integrate mental health with the existing primary health care services by training the existing personnel, i.e., the doctors and the multipurpose workers, in basic mental health care. With the inclusion of mental health in primary health care, the multipurpose health workers are now trained for early recognition of all severe mental disorders and epilepsy in the community; referral of the identified patients to the primary health centres; regular follow-up of such patients in the community with feedback given to the doctors at the PHC; education and motivation of the patients' families and neighbours to look after them with sensitivity; and management of psychiatric emergencies when the doctor is not available. The PHC doctors are trained to diagnose and manage severe mental disorders, both acute and chronic; refer difficult cases for specialist opinion to district hospitals and receive them back for further follow-up; and supervise and guide the multipurpose workers.

Following the feasibility exercises, pilot training programmes for PHC personnel, regular training programmes for different categories of personnel, and the development of manuals are taking place at NIMHANS. Follow-up has been extremely positive. However, the need for an adequate supply of drugs for long-term management and careful monitoring were seen to be necessary.

Mental health has traditionally received the least priority in nation and state health planning. Health planners, administrators and medical professionals are unaware of the widespread morbidity caused by mental illnesses. The wide-ranging misconceptions have resulted in poor demand for modern services and underutilisation of the limited available services. To fulfil the requirements of mental health care, the National Mental Health Programme (NMHP) proposes to train medical health officers to manage cases at the periphery and enable them to identify mental illness and follow up the treatment recommended by trained specialists who periodically visit remotely located centres. With the help of health workers, social workers and volunteers, the people are sought to be educated on mental illness and a greater awareness is generated among general practitioners, the patients, their relatives and local social workers.

The psychiatry approach which offers the answer to the widespread malaise of mental illnesses thus has the additional advantage that it can relate to the Indian context. Despite the breakdown of social ties and norms, the family and society remain the pivot of Indian social structure. Through their participation and with the provision of essential health services and requisite know-how, mental health services can show promising results.

health care to a large section of the population within a short period of time.

School Mental Health

The recognition of the problem of mental health among school children has led to two important innovative programmes involving school teachers. One approach aims to train teachers to recognise and care for the problems of children (Kapur and Cariappa 1978; Kapur et al. 1980), while the other focuses on 'student enrichment' by providing them with skills in interpersonal relationships, learning and problem-solving (R. Parthasarathy et al., personal communication, 1988). Manuals for teachers have been developed for both the approaches. Both these however, have been limited in coverage and large-scale programmes need to be taken up.

Voluntary Agencies and Mental Health Care

In the history of the development of mental health care, public opinion rather than professional effort has played a greater role. The mental hospital movement started by Ms Dorothea Lynde Dix, a school teacher, the Mental Hygiene Movement initiated by Mr Clifford Beers, and the movement to involve parents in the care of the mentally ill are cases in point (Srinivasa Murthy 1986; see also other articles in the same issue). For various reasons, it is less likely that the mentally ill will themselves become pressure groups. Public support and guidance is vital in a number of ways, and can be clearly seen in the role played by the National Alliance for the Mentally Ill (NAMI) in the USA and the Schizophrenia Fellowship in England. They have, in the last decade, mobilised support for greater funding for research in mental disorders and legal provisions for the mentally ill, in addition to other actions. In India, public and voluntary agencies have taken up activities in the following areas:

1. Mobilising public support and demand for services (e.g., SCARF, Madras; Sanjivini, New Delhi; Abhaya, Trivandrum)
2. Provision of 'crisis intervention' help (e.g., Sanjivini, New Delhi; Sneha, Madras; MPA, Bangalore; Sahaya, Hyderabad; Help, Bombay; Helping Hands, Bangalore)
3. Catalysing and supporting the families of the mentally ill and mentally retarded persons (e.g., Samadhan, New Delhi; Shelter for Mentally Ill, Bangalore)
4. Mobilising funds for research in mental disorders and their care

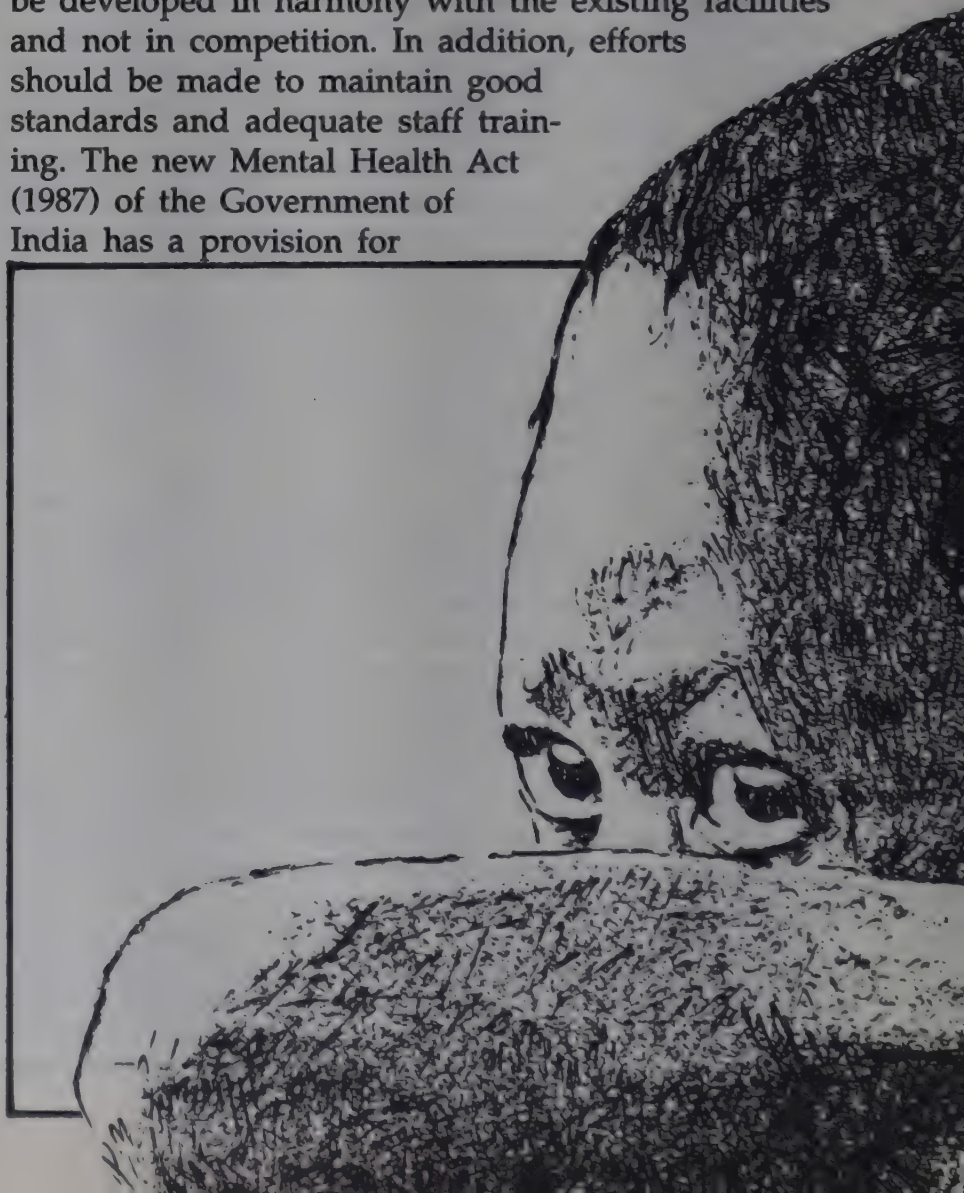
A notable contribution by the voluntary agencies during the past ten years has been the effort to pressure

the government to improve the living conditions in mental hospitals and the treatment meted out to patients. The active and radical groups at Ranchi, Delhi, Trivandrum and Pune have initiated public interest campaigns against the lack of facilities and the abuses to which patients are subjected in the mental hospitals. A positive feature of these efforts has been the creation of state-initiated review committees and radical changes in the hospitals themselves ('Panel Favours Community-based Mental Health Scheme', *The Hindu*, 28 April 1987).

Alternative Settings of Mental Health Care

With the closure of mental hospitals in the West, a large variety of 'alternatives' in the form of day care centres, half-way homes, hostels, sheltered workshops, foster care, etc., have come up. In India, however, such developments have not taken place and these facilities are currently available in limited form in Bangalore, Delhi, Madras and Trivandrum (*Community Mental Health News*, nos. 3 and 4, NIMHANS, Bangalore).

These alternative facilities for mental health care are relevant as they are need-based, located close to the community, and are small in size with a high staff: patient ratio. They fulfil the important need to generate public support as well as to meet the needs of families with limited support and persons who require intensive social and rehabilitative treatment. These facilities should be developed in harmony with the existing facilities and not in competition. In addition, efforts should be made to maintain good standards and adequate staff training. The new Mental Health Act (1987) of the Government of India has a provision for



licensing and monitoring by a Mental Health Authority.

The role of the media is also important in highlighting the ills of mental hospitals. Popular films have sporadically focused on this subject (*Rat Aur Din* [Hindi], *Sharapanjara* [Kannada], *Anjali* [Tamil]). However, major movements using these avenues have not yet occurred (see Balse 1971; 'The Sane Approach', *India Today*, 1-15 June 1981; 'Preying on the Gullible', *India Today*, 16-30 September 1981; 'A Moment of Madness', *India Today*, 16-30 October 1981).

Drug Dependence Programme

The creation of a drug dependence programme at the national level is less than five years old. The focus has been to utilise a wide variety of approaches ranging from de-addiction centres to mass education campaigns. The Ministry of Social Welfare has set up about ten centres with ten to thirty beds each. Another important area of action has been the fight against alcohol from centres like Ghadchiroli in Maharashtra and Jodhpur in Rajasthan which have highlighted the fact that efforts have to be directed at the socio-political level and not limited to medical settings alone (Purohit 1986).

The Ghadchiroli experience in particular is illustrative of the need for alternative approaches. This experience focused on economic development rather than fighting the battle from a moral or medical plane alone. And, by demanding the right to self-determination and self-governance with regard to the framing and implementation of the policy of prohibition, it has supported 'villagers' rule in villages' which is a new development in the area of drug abuse control (Bang and Bang 1990).

Promotion of Mental Health and Prevention of Mental Disorder

In 1986, this topic formed the basis of discussions at the World Health Assembly as a major area for international action (WHO 1986). The background document concluded that mental, neurological and psychosocial disorders constitute an enormous public health burden. A comprehensive programme directed against their biological and social causes could substantially reduce suffering, the destruction of human potential, and economic losses. It would require the commitment of the government and coordinated action by several social sectors.

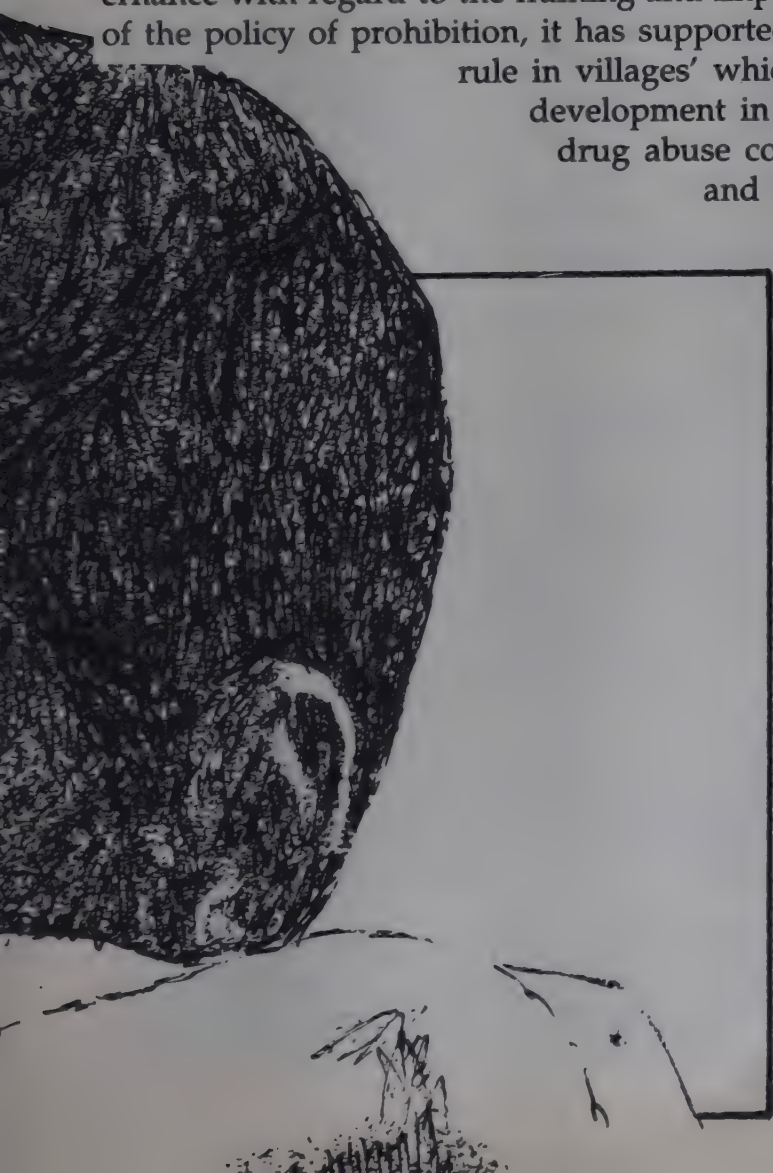
Specifically, measures towards the goal of promotion of mental health and prevention of mental disorders can be initiated through:

- (i) Prenatal and perinatal care
- (ii) Programmes for child nutrition
- (iii) Immunisation of children
- (iv) Family planning
- (v) Control of the use of psychoactive substances
- (vi) Crisis intervention
- (vii) Correction of sensory defects
- (viii) Control of hypertension
- (ix) Better day care for children
- (x) Better long-term care institutions
- (xi) Self-help groups
- (xii) Teaching parenting skills
- (xiii) Prevention of accidents
- (xiv) Strengthening cultural and religious influences and enhancing social support and family cohesion
- (xv) Disaster help
- (xvi) School health education
- (xvii) Minimising hospitalisation

In India, many of these interventions form part of the national health programme (WHO 1986).

National Mental Health Programme

The National Mental Health Programme (Government of India 1982) is the outcome of the developments in providing mental health care through different methods as well as the overall goals of health care in general. The first concerted effort to formulate a national programme was held in July 1981. Over seventy mental health and related professionals met at New Delhi and reviewed the needs in the area of mental health and the possible approaches. The result of this workshop was a draft



NMHP for further consideration. On 2 August 1982, a small group of experts met to consider the revised document and finalise the same. This document was presented to the Central Council of Health and Family Welfare at its meeting between 18 and 20 August 1982. This body, the highest policy-making body in the realm of health, recommended the NMHP for implementation.

The objectives of the programme are:

1. To ensure availability and accessibility of minimum mental health care for all in the foreseeable future, particularly to the most vulnerable and underprivileged sections of the population
2. To encourage application of mental health knowledge in general health care and in social development
3. To promote community participation in mental health services development and to stimulate effort towards self-help in the community

The specific *approaches* suggested for the implementation of the NMHP are:

1. Diffusion of mental health skills to the periphery of the health service system
2. Appropriate appointment of tasks in mental health care
3. Equitable and balanced territorial distribution of resources
4. Integration of basic mental health care within general health services
5. Linkage to community development

The Central Council of Health and Family Welfare recommended that: (i) mental health must form an integral part of the total health programme and as such should be included in all national policies and programmes in the field of health education and social welfare, and (ii) realising the importance of mental health in the course/curricula for various levels of health professionals, suitable action should be taken in consultation with the appropriate authorities to strengthen the mental health education component.

Following the formulation of the NMHP, the first opportunity to develop a plan of action was provided by the Seventh Five-Year Plan in 1985. A working group, part of the overall sub-committee on non-communicable diseases, was set up to develop specific plans for implementation. The next development followed the plan allocation of Rs 100 lakhs for the NMHP during the plan period. A committee under the chairmanship of Dr G. N. Narayana Reddy, Director, NIMHANS, Bangalore, was constituted on 16 January 1986 to draw up an appropriate programme to be taken up during the plan period. The committee held its meeting at Bangalore and Delhi and submitted its plan for implementation of the NMHP. This included the pattern of assistance to be provided and the details of the activities to be under-

taken. The salient features are:

1. Programme of community mental health at the primary health care level in states/Union Territories
2. Setting up of regional centres for community mental health
3. Formation of a National Advisory Group on mental health
4. Task force on mental hospitals
5. Prevention of mental illness and promotion of mental health
6. Integration of multipurpose training schools in the NMHP
7. Involvement of voluntary agencies in mental health
8. Mental health education for undergraduates
9. Evaluation of community mental health programmes
10. Preparation of manuals and records

An outcome of these recommendations was the order of 22 September 1987 issued by the government which outlined the pattern of assistance for the NMHP during the Seventh Five-Year Plan in the states.

Since its inception, the efforts of the National Mental Health Programme have been directed at:

1. Sensitisation and involvement of state-level programmes
2. Workshops for mental health professionals, namely, psychiatrists, clinical psychologists, psychiatric social workers and nurses
3. Workshops for voluntary agencies
4. Training programmes in public mental health for programme managers of four weeks' duration for about 100 persons from different parts of the country
5. State-level workshops for the personnel of health directorates and secretariats
6. Evaluation of the level of care provided by trained PHC personnel
7. Development of a model District Mental Health Programme
8. Training programmes for teachers of basic health workers
9. Preparation of support material in the form of manuals, records, health education materials. Currently, manuals for doctors, MPWs, teachers and *anganwadis* are available along with posters and flip charts for public education
10. Training programmes for teachers of undergraduate medical education
11. Workshops for superintendents of mental hospitals and training for the staff of mental hospitals (Government of India 1989; DGHS 1990)

Nine years since the formulation of the NMHP is too short a period and the funding far too limited to have a major community impact. What is notable, however, is that mental health is included as one of the national



programmes, first level care is available at some of the centres, and, planners and professionals are aware of the need to provide mental health care to the entire population within a reasonable period and with the available resources. In addition, during this period the Centre for Advanced Research for Community Mental Health was set up for longitudinal research in this area at NIMHANS, Bangalore.

Another recent development is the drug dependence control programme developed since 1986. This was a follow-up of the acceptance of the Narcotic Drugs and Psychotropic Substances (NDPS) Act, 1985, and the growing prevalence of the use of 'hard' drugs like heroin. The salient features of this programme are:

1. Setting up of de-addiction centres
2. Training of personnel
3. Support to voluntary agencies for de-addiction care
4. Monitoring the use of drugs in the country: special centres have been set up at Delhi, Chandigarh, Bangalore and Pondicherry for the purpose

The development of services for the mentally retarded has gradually moved away from the area of mental health. In fact, the Mental Health Act (1987) excluded

mentally retarded persons from its ambit. A National Institute for the Mentally Handicapped was set up in 1984. The current policy is to train in-service teachers, develop training and educational materials and provide legislative and other support for the mentally handicapped individual.

The existing legislation relating to the mentally ill, the Indian Lunacy Act, 1912, has been replaced by the more appropriate Mental Health Act of 1987. The implementation of the same is awaited.

The National Mental Health Programme for India and its implementation can be considered against the larger health services. The cardinal points of health organisation are decentralisation, the provision of services close to the population, and integration of services, both a co-ordinated service and total health coverage. The need for mental health care—promotive, preventive and curative—is now well recognised. The NMHP has provided the framework for mental health care in the country. The initial years of effort have developed mechanisms to involve planners, politicians, the public and professionals in the programme. The most significant achievement is the development of models of care suitable for a population of 1,00,000 to 1.5 million. There should be better coverage by the programme in the years to come.

International Developments in Mental Health Care

Recognition of the importance of mental health care in developing countries is a recent phenomenon, barely one to two decades old. A review of the developments in this area in the developing countries demonstrates the following points:

1. Mental health manpower in the developing countries has shown a dramatic improvement, including national level training programmes
2. A number of countries have included mental health care as part of primary health care
3. Local, regional and national level innovative projects have been initiated in most countries
4. Training programmes for a wide variety of personnel—from health, welfare, education, law and laypersons—have been developed
5. Research has been initiated to understand the impact and level of care achieved by these programmes

Most developing countries, however, are still at the initial stages of mental health programme development.

Mental Health Research

An important development in the area of mental health in India has been the series of research efforts towards an understanding of the magnitude of mental disorders, pattern of mental disorders, courses and outcomes, response to treatment and related psychosocial factors. The most significant contribution has been in the area of psychiatric epidemiology. The understanding of the nature of illnesses like schizophrenia, manic depressive psychosis, childhood disorders, hysteria, depression, alcohol dependence, etc., as seen in the Indian setting, have demonstrated that there are features specific to Indian situations. For instance, it has been noted that there is a significant difference in the outcome of schizophrenia in India with early and regular treatment, as compared to the West. These research efforts have emphasised the need to continuously study the mental health problems as they occur in India and to base the programme on Indian data. On average, during the last ten years about 100 to 150 research reports have been published by mental health professionals in India on a wide variety of topics. The ICMR (1982) has provided support for these efforts in mental health research.

Future Directions

The development of mental health programmes in India is still at an embryonic stage. Perhaps this is an

advantage for the development is occurring at a time when the emphasis is on community care and utilisation of community resources. This could help us avoid the problems of too much institutionalisation in the field.

Thus, we have in India a 'clean canvas' to develop our own themes. The total institutional bed facility is



insignificant. It matters little that the total number of hospital beds for the mentally ill in India is less than in the city of New York or Tokyo or in a small country like Holland. There is a positive aspect to this fact: there is no need to close down institutions! The second positive feature is that the mentally ill in India already live within the community, whereby community care easily becomes the mainstay of mental health care in India. Related to this is the fact that there is a high degree of public tolerance, both in urban and rural areas, and the stigma is reserved mainly for 'chronic' patients. India's plans for the mentally ill include curing some, caring for a large number, rehabilitating several more, thus leaving only a small proportion for long-term institutional care. The overall welfare policy of the country is towards universal coverage and utilisation of community resources. As a result, our problem is not one of institution vs. community but the development of a wide variety of programmes to meet the specific needs of different groups of individuals at different stages of ill health. There is a greater need to utilise community resources, both formal and informal, for mental health activities. This is a challenge for the future. The complexity of mental health care calls for multiple approaches and multiple actions. In this effort the politician, professional, public planner and the press have crucial and interacting roles to play. Such efforts can lead to a better quality of life for the mentally ill and the promotion of mental health.

Can we expect meaningful results in the near future? The answer depends on five factors: (i) the general approach to development and welfare in the country, (ii) political commitment, (iii) professional commitment, (iv) advances in mental health know-how, and (v) public involvement (Srinivasa Murthy 1982). A brief outline of each of these is considered below.

In the area of development, the last decade has been rich in the formulation of policies and programmes. What is important is that financial support is also provided for the implementation of these programmes. The specific aspects of general development relevant to mental health care are (i) literacy, (ii) accessibility of the population to all-weather roads, and (iii) an improved standard of living. Kerala is an example of how these factors can lead to better mental health services. The progress in the organisation of general health services would be vital, in terms of the size of the PHC, staffing pattern, supports and supplies, and administrative mechanisms. The lowering of the population unit per PHC to 30,000 is a positive step. With improvements in general health care, mental health will no doubt improve. Specifically in the area of mental health infrastructure, the decision to not build mental hospitals is a welcome one. There is an urgent need to make all mental health inputs community-centred as against individual/client-centred. Thus, what was said in the context of tuberculosis is relevant to mental health care as well: 'therefore what we need to eradicate tuberculosis, and this will

apply to leprosy also, is not more research, more knowledge but more commitment on the part of everyone, governments and citizens alike, to create the organisational and managerial [set-up] needed' (Sanjivini 1992).

'Political forces play a dominant role in the shaping of the health services of a community, through decisions on resource allocation, manpower, policy, choice of technology and the degree to which the health services are to be available and accessible to the population' (Banerji 1976). However, mental health professionals today are too preoccupied with the clinical questions to speak the language of care in terms of lost productivity and social burden, which appeal to planners and politicians. The positive developments in improving the mental hospitals at Ranchi, Delhi, Pune and Trivandrum are a pointer. Similarly, the rapid development of de-addiction facilities all over the country is another indicator of how political will can bring about rapid changes.

Mental health professionals (psychiatrists, clinical psychologists, psychiatric social workers, psychiatric nurses, rehabilitation therapists) have a special role to play in future developments. Artificial and rigid boundaries between different professionals must be lowered. Professionals should devote their efforts to the new approaches in terms of new knowledge and evaluation, and accept the support, supervision and partnership with non-professionals as an essential part of their work. In short, a lot depends on whether professionals will consider the community care approach as a real alternative.

Advances in mental health to support the new approaches will be vital. It must be recalled that the domiciliary care of tuberculosis was demonstrated scientifically before the approach moved out of the walls of the sanatoria. In the area of mental health care as well, efforts have to be made towards early recognition, referral, treatment, and the relative merits and demerits of different interventions.

The general public forms the most vital link in the organisation of mental health services: it is they who can demand services, regulate the new alternatives, and develop support for policies and programmes. As noted in the case of Kerala, public opinion and awareness can be a strong stimulus for the development of programmes.

Today, India is at the threshold of a new era of developments in mental health care. The time appears ripe for dynamic changes and here, perhaps, lies the road which will 'reach the unreached'.



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The Voluntary Health Association of India (VHAI) is a secular, non-profit federation of over 3000 organisations working in the field of health and community development. VHAI strives to make health a reality for all, especially the unreached and the oppressed.

VHAI fulfils these objectives primarily through training and by providing information to the target groups. In support of its objectives, VHAI also develops and distributes appropriate educational aids to the organisations serving at the grassroots. Linking up these organisations through its newsletters and journals also constitutes an important activity of VHAI.

VHAI researches into and campaigns on relevant and important health issues to ensure that a people-oriented health policy is brought about and effectively implemented. VHAI also works to sensitise the large public towards a scientific attitude to health.

Voluntary Health Association of India

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This collection of essays on the state of India's health is the first of its kind in the country. Written in a lucid and cogent style and dramatically illustrated, this volume looks at 'Health' from a broader perspective, concentrating primarily on preventive rather than curative care. Avoiding the use of jargon to the extent possible so as to reach its target audience - the layperson - this book takes one through the entire gamut of issues relating to this wider concept of health-education, indigenous systems of medicine, health finance, family welfare, information systems, disability, the condition of the aged and the mentally ill, and, above all, the specific issues relating to women and health.

A valuable and timely collection of articles that attempts to assess the impact of socio-economic developments on people's health, the reach and effectiveness of existing health services, and the role of the government and NGOs in the field.

This book will prove invaluable reading for all those interested in the health of India's population - not medical professionals alone, but social and political activists, policy-makers and health planners, programme implementors, academics, and, above all, the layperson.



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